



ANNUAL REPORT

1981-82

1982
(SECOND SESSION)

PARLIAMENT OF NEW SOUTH WALES

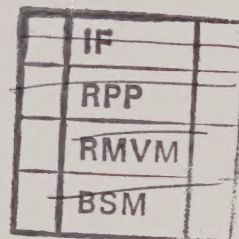
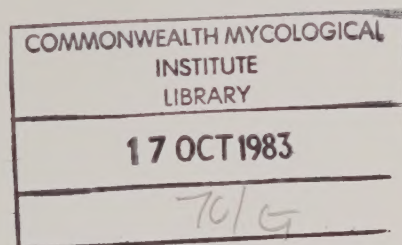
REPORT

OF THE

DEPARTMENT OF AGRICULTURE

FOR THE

Year ended 30 June, 1982



Ordered to be printed, 26 November, 1982

BY AUTHORITY
D. WEST, GOVERNMENT PRINTER, NEW SOUTH WALES—1983

The Hon. J.R. HALLAM
Minister for Agriculture and Fisheries
Sydney

Sir,

I have the honour to present a report reviewing the activities of the Department of Agriculture for the year ended 30th June 1982.

G.H. KNOWLES
Director-General

The objectives of the Department of Agriculture, New South Wales are to safeguard, and improve the productivity of, the agricultural industries of New South Wales; and to encourage the orderly marketing of safe, acceptable produce, with consequent improvement in the prosperity and quality of life of both rural and urban communities.

The main aim of this report is to enable the Minister to table in Parliament a comprehensive record of what the Department did to attain its objectives during the year under review.

This report is also distributed to libraries and others throughout Australia and overseas, usually on an exchange basis. It is not intended for the wider audience catered for by other, more regular, publications. More detailed statistical information on agricultural industries and commodities is available from the Department and from other sources.



Digitized by the Internet Archive
in 2025

Contents

Page	Page
9 Foreword	36 Advisory services
11 Drought	37 Technical services
11 Meat substitution disclosures	37 Agricultural engineering
12 Increased monitoring of stock medicines	38 Agricultural education
12 Brucellosis Eradication Campaign	40 Publications
12 Exotic disease control	40 Library services
12 Boil smut of maize	40 Agricultural Bureau
13 Primary Products Promotion Unit	40 Rural Youth
13 Commissioning of the Glenfield farm fuel ethanol plant	41 Pastures Protection Boards
14 Establishment of Group Activities Unit at Cowra	41 Training and human resource development
15 Wheat	41 Overseas projects
15 Other cereals	42 Regulatory services
16 Other field crops	44 Administration
17 Pastures	46 Staff at 30th June 1982
18 Weeds	47 Energy management programme
19 Remote sensing	47 Safe, responsible pesticide use campaign
19 Irrigation	47 Major fellowship awards
20 Horticultural crops	47 Land use assessment
23 Beef	48 Environmental impact statements
25 Sheep	48 Grasshopper pests
27 Goats	50 Appendix I—Diagnostic and testing services
29 Dairying	52 Appendix II—Summary of Department's regulatory activities under various State and Commonwealth Acts
30 Poultry	56 Appendix III—Financial summary 1981-82
31 Pigs	60 Appendix IV—Committees, councils, trusts and marketing boards
32 The meat industry	61 Appendix V—Report of the Prickly Pear Destruction Commission for the year ended 30th June 1982
32 Honey industry	63 Appendix VI—Agricultural college courses and student statistics
33 Feral pigs	
33 Animal health	
33 Marketing and economic services	
35 Research services	

Foreword by the Director-General of Agriculture, Mr G.H. Knowles



The Drought

The drought that started in the north west of New South Wales in the winter of 1979, and which appeared to have broken in June 1981, continued through 1981-82.

After more than three years of drought, nearly all sections of agriculture were affected, particularly those in areas west of the Great Dividing Range. Dryland cropping forecasts for the coming season were drastically reduced, and will be further reduced if the drought continues. Stock numbers, which fell heavily in earlier stages of the drought, have increased little. Wool quality was generally downgraded by vegetable fault and dust content. Lamb prices were affected by producers holding over summer lambs until more feed was available and then flooding the winter market.

Not only producers and their employees were affected: sales of farm machinery and equipment dropped, leading to staff reductions by manufacturers and resellers; decreased spending in some districts affected whole towns; and every taxpayer helped to pay for drought relief measures.

Throughout the drought, the Department provided information and assistance on drought feeding and management, feed values, financial options, sources of assistance and animal health.

Departmental researchers increased work on drought-related research in animal nutrition, animal health and agronomy.

Regionalization

The restructuring of the regions of the Department was put into practice on 1st July 1981, after 13 months of planning and organizing as recorded in the 1980-81 Report.

Regionalization allowed many local policy, administrative and technical decisions, that were formerly made in Sydney, to be made in the country. The five regional Boards of Management now coordinate all of the Department's advisory, research,

regulatory, veterinary and administrative work in their own regions: a new role and one which worked extremely well in the first 12 months of operation.

More front line advisory positions were filled, often in towns where the Department had never before had an office. The increase in advisory staff came from the transfer of existing positions.

The Meat Substitution Disclosures

The substitution of low grade meat for export quality meat at abattoirs and meat packing works outside New South Wales led to very tight and costly restrictions at all export establishments.

The Department reduced the chance of substitution in this State by providing a meat inspection service at all knackeries where all pet meat is now adequately stained. A forensic laboratory was also developed so that meat species-of-origin can be determined.

Overseas Projects

I visited Sri Lanka, Bangladesh and China during the year to review programmes and assess the scope for further development on projects that the Department is supervising in those countries. There is a continuing urgent need for technical assistance to increase food production in each of the countries visited.

Boil Smut

An outbreak of boil smut, caused by the fungus *Ustilago maydis*, occurred in maize crops on the north coast during autumn. The disease was recorded on 43 properties from south of Grafton to the Queensland border and on 14 properties in neighbouring areas of south eastern Queensland. These outbreaks represent the first records of boil smut in Australia since the disease was eradicated from the Bathurst district of New South Wales in 1940. A Plant Health Committee working party on boil smut has prepared recommendations to the Standing Committee on Agriculture regarding research on the disease and measures for its control.

Land Use

The Department of Agriculture is concerned about the loss of better quality agricultural land to incompatible uses and to prevent this has increased the number of staff involved in land use assessment. The use of proper zoning as a means of protecting agricultural land has become increasingly important, and the Department is cooperating with planning authorities at both regional and State levels.

The expertise within the Department of Agriculture in the area of agricultural land use assessment is reflected in the increase in requests for agricultural land studies. Over the past twelve months more than 20 shire councils have requested the assistance of the Department.

On the north coast where subdivision of good quality agricultural land is causing concern to the community, a major study of the Cudgen-Duranbah area was undertaken and presented to the Tweed Shire Council. The recommendations made in the study gained popular support and the study set a precedent for further work in this area.

On a larger scale the Department is involved in studying agricultural land resources in the Illawarra region so that rational planning can be undertaken to ensure protection of better quality agricultural land.

The Department is recognised as an important resource base on agricultural land issues and has been used by consultants as well as government and semi-government bodies. The Department will continue to be involved in agricultural land studies to conserve better and/or unique agricultural land for continued viable agricultural production.

Drought

The drought that started in the north west of New South Wales in the winter of 1979 continued in many parts of the State during 1981-82 — its third successive year or 38th month by June 1982.

In July 1981, 39 of the 58 Pastures Protection districts were drought declared.

Fortunately, most districts had a reasonable spring, and by December 1981, only six districts remained drought declared. These included the Pastures Protection districts of Eden, Bombala and Cooma which have been in continuous drought since the end of 1979.

While many parts of the State received worthwhile rains in March 1982, the lack of any follow-up rain resulted in a rapid deterioration in the feed supply and about half the State was again drought stricken by June-July 1982.



New South Wales stockowners received \$6 million in rail and road freight subsidies for carting drought fodder in 1981-82.

Drought Relief

The drought relief package is financed by the New South Wales Government meeting the first \$10 million and then contributing \$1 in every \$4 with the Commonwealth. This package includes drought loans; rail and road freight subsidies on the cartage of fodder, water and livestock; free water for stock and domestic use; and cattle slaughter compensation.

During 1981-82 expenditure included:

Loans	16 437 000
Road freight subsidies (livestock)	8 152 000
Road freight subsidies (fodder)	5 922 000
Water supply and cartage subsidy	99 000
Cattle slaughter compensation	15 000
Rail freight subsidies	393 000
TOTAL	\$31 018 000

Over the three financial years ending 30th June 1982, about \$100 million in drought relief expenditure was approved — \$60 million as loans and \$40 million as grants for the various concessions and subsidies.

The State Bank of N.S.W. is responsible for administering the drought loans, and veterinary inspectors, rangers and other staff of Pastures Protection Boards locally administer the road freight subsidy scheme.

Throughout the drought the Department provided information and assistance on drought feeding and management, feed values, financial options, sources of assistance and animal health.

Drought Research Group and Feeds Evaluation Unit

To ensure that departmental advisory officers are supplied with the most up-to-date and reliable technical information for use during droughts, the Department established a Drought Research Group and the Nutrition and Feeds Evaluation Unit. The Drought Research Group consists of a convenor, one livestock research officer from each region, the special livestock officer responsible for nutrition with the sheep, beef cattle and dairy advisory groups, the special economist (farm management) and a representative each from the Divisions of Animal Health and Plant Industries.

The Nutrition and Feeds Evaluation Unit analysed pasture, hay and grain samples forwarded by advisory officers who used the results to provide specific information to producers, particularly those in drought stricken areas.

Meat Substitution Disclosures

The export meat substitution disclosures, while not implicating New South Wales, resulted in the imposition of very tight and costly security measures in all export-registered abattoirs and meat handling establishments. The Department responded to the threat of substitution by:

- providing a meat inspection service in all knackeries to ensure the production of wholesome pet meat, adequately stained in compliance with the Noxious Trades Regulation; and
- the development of forensic laboratory capability to determine species-of-origin in meat samples.

The Department made a submission to the Royal Commission into the Australian Meat Industry outlining the relationship of the State Meat Inspection Service to the slaughtering industry, wholesale meat trade and the Commonwealth Meat Inspection Service.

Increased Monitoring of Stock Medicines

Recent detection of irregularities in assays on some stock medicines highlighted the need for increased supervision and checking of products registered under the *Stock Foods and Medicines Act*. A regular monitoring programme was started, and professional and technical staff were appointed to the Seven Hills Poultry Research and Advisory Station for this purpose.

Brucellosis Eradication Campaign

An additional 12 500 cattle herds were confirmed "free" of brucellosis during the year and the number of herds in quarantine was reduced by more than half. Testing continued statewide and by 30th June 1982, 98 per cent of cattle herds had been tested. On an area basis, 48 of the State's 58 Pastures Protection Boards are now Provisionally Free of brucellosis and a further five were eligible to be declared Provisionally Free.



Areas Provisionally Free of bovine brucellosis at 30th June 1982.

Exotic Disease Control

Exotic diseases posed a continuing threat to the Australian economy and to the health of animals and plants. An Assistant Director, Animal Disease Control, was seconded for two months to the Australian Bureau of Animal Health to assist in the development of the national information systems for use in the event of an animal disease emergency.

The departmental Exotic Disease Task Force was regionalised during the year. An inter-regional liaison committee was established to guide the development of regional task forces within the State's overall exotic disease preparedness programme.

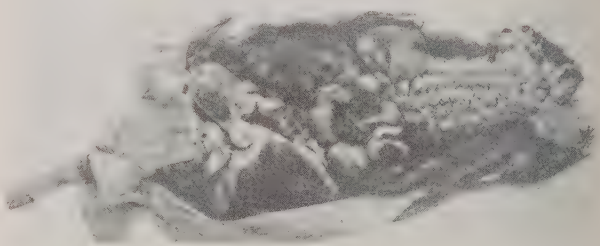


Racehorse being unloaded from overseas aircraft under Department of Agriculture quarantine supervision.

Boil Smut of Maize

On 19th March 1982, boil smut, *Ustilago maydis*, was found on a property about 35 km from Kyogle on the north coast. Extensive surveys of maize crops in New South Wales and Queensland revealed the occurrence of smut at more than 50 sites on the north coast and in south eastern Queensland.

The disease had occurred in the Bathurst-Kelso area in 1912 and despite the quarantine placed on that area in 1919, intermittent outbreaks occurred on several farms until 1940 when a complete quarantine and prohibition on the planting of maize was imposed. The disease has not been seen in that area since.



Boil smut of maize.

Boil smut of maize occurs throughout the world, and until now the main countries free of the disease were Australia and New Zealand. Overseas reports of losses caused by the disease vary, with few reliable records based on experimental data. At one time it caused large losses in open-pollinated maize in the United States, but the widespread use of hybrids bred for resistance reduced the importance of the disease. Reports of large losses in eastern Europe are believed to reflect the large proportion of open-pollinated maize in some countries of that region; and a more favourable environment for the disease than exists in much of the U.S. grain belt.

The seasonal conditions which appeared to favour the epidemic this year were above-average rainfall (250 mm/month), with rain falling on more than half the days during January-February; and temperatures of 20 to 25°C.

When it became apparent that the outbreak was too widespread to eradicate, the Plant Health Committee of Australia's Standing Committee on Agriculture set up an interstate working party to examine and make recommendations on controls, seed treatments and other measures needed to restrict spread of the disease. It is likely that the Department will assume responsibility for evaluation of breeding material for resistance to boil smut.

Wide publicity has been given to the outbreak and a notification issued under the *Plant Diseases Act* that all maize and sweet corn for planting be treated with an approved fungicide.

Primary Products Promotion Unit

In 1981 the Government decided to introduce a fresh food information service aimed at consumers and retailers. The service was a major innovation and change by the Department as most of its other services are primarily directed at producers.

The principal objective of the service is to promote consumer awareness of the importance of fresh food and the role of the rural community in providing that food. The Sydney Farm Produce Marketing Authority is a major funding source for the programme.

The service was launched on 20th November 1981, at a lunch at Parliament House under the slogan "Fresh is Best" and a well qualified home economist was appointed to coordinate the service.

Fresh Food Line

The Department, with industry support, has installed in the kitchen-television studio in Head Office, a recorded message facility known as the "fresh food line". Consumers of fresh food receive information on: the availability and prices of fruit, vegetables, meat and fish; how to store and use these foods; and the nutritive value of fresh foods.

The "fresh food line" concentrates on products which represent good value for money. The line uses the daily wholesale and weekly retail prices reports of the Departments' market reporting service and is updated weekly.

The service prepared a range of posters and pamphlets which are available on request.

Fresh is Best

"Fresh is best" was the theme of the 1982 Royal Easter Show display for which the Department received second prize in the Government and semi-Government exhibits section. "Fresh is best" was also the theme of a display at Senior Citizens Week in March.



The Department of Agriculture received an award for its 'fresh is best' display at the 1982 Sydney Royal Agricultural Show.

Television Programme

The Primary Products Promotion Officer has a regular five minute television programme on Channel 7 (going to New South Wales, Victoria, Queensland and South Australia) on which she outlines the "best buys" in fruit and vegetables in each State for that week.

The programme has been well received by the fruit and vegetable industries, the media and by consumers.

Commissioning of the Glenfield Farm Fuel Ethanol Plant

The Minister for Agriculture and Fisheries formally commissioned the farm fuel ethanol plant at the Department's Agricultural Engineering Centre, Glenfield on 2nd December 1981.

The Glenfield plant was designed as a demonstration and experimental "farm-sized" fuel ethanol plant. It is being used to assess the feasibility, technology and economics of production of ethanol at the farm level, and to develop the technology of ethanol use as an engine fuel.

The Minister for Agriculture and Fisheries, the Hon. Jack Hallam, M.L.C., draws the first fuel produced from the Farm Fuel Ethanol Plant at the Agricultural Engineering Centre, Glenfield, which he officially commissioned on 2nd December 1981.



During shake-down trials which started in August 1981, the plant exceeded the designed throughput rate of 100L/hour, and produced ethanol of up to 94 per cent concentration. Feedstocks used included sorghum, triticale and wheat, with sorghum the easiest to manage.

In his opening address, the Minister commented that this was a "first" for Australia: the only professionally operated small-scale fuel ethanol plant performing successfully on grain feedstocks.

Findings showed that small-scale ethanol production is uneconomical at present. Furthermore, the technology is by no means simple and places heavy demands on labour for such a small-scale plant. The cost of fuel produced by the plant was estimated at about one dollar per litre.

Establishment of Group Activities Unit at Cowra

The Group Activities Unit, consisting of a Director and Assistant Director with appropriate support staff, was established at Cowra to provide statewide coordination of the Department's roles in servicing the Agricultural Bureau, Rural Youth and correspondence farm management courses. This unit works through the regional group advisory officers who were established in each region to implement policies and provide agricultural service to the various groups.

With the transfer of Extension Officers to other advisory duties, contact officers were appointed in each office to service original enquiries. All departmental advisory staff are thus available as resource personnel for the various groups.

The new emphasis of support to the groups is now primarily agriculturally based, with less emphasis on other activities which are now the groups own responsibilities.

Wheat

An estimated 5.9 million tonnes of wheat was harvested in 1981-82, from 3.6 million hectares of crop sown. Production was more than double the severely drought-affected crop of 2.8 million tonnes in 1980-81. Yield prospects in the early spring were rather poor, especially in marginal areas, because there was very little rain in August and September. However good rain and mild temperatures in October and November enabled average yields to be obtained. Production was the third largest on record.

Ten quality grades were determined for 1981-82 receivals. The Southern Hard grade was of excellent quality as indicated by test weight, protein content and overall appearance. Hot, dry weather before and during harvest was conducive to the production of good quality grain. On the other hand the quantity of Prime Hard wheat was reduced because of wet weather at the beginning of harvest. The wet harvest period also caused substantial quantities of Durum wheat to be down-graded in quality.

Good results were obtained at the Department's wheat breeding centres. Varieties bred by officers of the Wagga Agricultural Research Institute were grown on 60 per cent of the State area and were also important in other States. The crossbred M2145 bred at Temora was named Harrier and recommended for growing in 1982. It is similar to Kite in grain quality and disease resistance but can be sown several weeks earlier. It is especially adapted to the northern and central areas of the State. Two very promising semi winter wheat crossbreds for the south and three frost tolerant varieties for the north are undergoing final tests.

Experiments, demonstrations and publicity about the advantages of reduced cultivation and direct drilling resulted in a much greater acceptance of the technique, particularly in better rainfall areas. Many districts throughout the State were too wet to sow by conventional methods for long periods during the early winter, and large areas were able to be sown only by the use of herbicides and reduced cultivation techniques.

No-till Agriculture and Herbicide Interactions

A comprehensive "no-till" research project supported by continuing funds from the Wheat Industry Research Committee of New South Wales is in progress in northern New South Wales. Field experiments have confirmed that carry-over of the herbicide atrazine from a preceding fallow poses no residue problem in acid soils due to rapid microbial degradation at low pH. However, substantial carry-over may occur at high rates of herbicide application in neutral or alkaline soils. Improved moisture retention under no-till systems also appeared to provide a more favourable environment for microorganisms which can degrade the herbicide, glyphosate.

Stripe Rust

Stripe rust was observed for the third successive year. Although most recommended varieties and advanced crossbreds maintained moderate to high resistance, a new strain of stripe rust was detected which can attack Avocet, previously the best available variety for irrigation in southern New South Wales. Some irrigated crops of Avocet suffered substantial yield reductions due to stripe rust.

Leaf diseases such as speckled leaf blotch and yellow leaf spot started to develop mostly in southern areas during the winter but dry conditions in September-October slowed them down considerably. The major disease in central and northern areas was crown rot probably due to the dry early spring. Most crops were infected, some severely.

Irrigated Wheat Studies

Studies in the Macquarie River Valley have indicated that reduced irrigated wheat yields in the region could be due to development of a poorly structured layer at a depth of 40cm in grey and brown clays under intensive irrigated cropping. Field experiments by officers from the Biological and Chemical Research Institute, Rydalmere, and Agricultural Research Centre, Trangie, have shown that deep ripping substantially increased water entry at the first irrigation after treatment and increased crop yields.

Gypsum application was also more effective, and it increased yields in all treatments. This work is supported by research funds from the Wheat Industry Research Committee of New South Wales.



One of a number of commercial direct drill machines being evaluated by the Agricultural Engineering Centre, Glenfield.

Early Quality Assessment of Varieties for Biscuit Production

A new minimill and two physical dough testing instruments were purchased with funds from the Rural Credits Development Fund, and used for testing of 2000 wheat breeding lines for milling potential, and some 200 of these for suitability in biscuit production. The use of equipment for the early physical evaluation of small quantities of grain is seen as the most effective way of serving wheat breeders in the future.

Grain Fibre Study

A new project to study fibre properties of wheat grain was started. This will assist in the identification of higher quality wheat varieties for flour production and is being supported by a grant from the Rural Credits Development Fund.

Other Cereals

As with wheat, favourable conditions during the late spring resulted in much better yields for the other winter cereals in 1981-82 than in the previous season. Dryland grain sorghum crops received a good start with the widespread rain in October and November. However December, January and February were mostly dry and hot and some crops failed. Excellent rain in late February and March saved most crops and provided average yields.

	Total yield in tonnes	
	1980-81	1981-82
Barley	413 000	853 000
Oats	310 000	820 000
Grain sorghum	148 000	339 000
Maize	45 000	72 000
Rice	704 000	835 000

Breeding and New Varieties

The barley breeder at Wagga Agricultural Research Institute released Bandulla, a white grained, two-row, early maturity variety. It is adapted to the north west and to the drier parts of the central and south west. It was bred in Victoria.

Carbeen, a dual purpose oat variety bred by the Department's oat breeder at Temora was released during spring. It is resistant to smuts and has field tolerance to stem rust. The grain is of good quality but is not suitable for milling because of its proneness to twinning. It is best adapted to the tablelands and the better rainfall parts of the slopes, maturing between the cultivars Blackbutt and Cooba.

Rice breeding is carried out at Yanco Agricultural Research Centre. The aim of the programme is to breed high yielding short, medium and long grain varieties with good milling, cooking and processing qualities adapted to the Murrumbidgee and Murray irrigation areas. The long grain rice variety, Pelde, was released early in the year. It performed very well in large scale commercial trials and its future depends on the reaction of overseas buyers.

Also released was the late-maturing maize variety, GH5006, which was bred at Grafton Research Station. It performed very well in variety trials both on the coast and inland.

Plant pathologists at the Agricultural Research Institute, Wagga Wagga, identified a number of sources of resistance to the speckled leaf blotch (*Septoria*) disease of wheat. The resistance is being incorporated into a range of wheats by breeders using the backcrossing technique.

Rice

The irrigation areas of southern New South Wales produce almost all the Australian rice crop. A record 835 000 tonnes were produced in 1981-82 from a new record of 120 000 hectares.

Maize

A record six tonnes per hectare was achieved with maize in 1981-82. An interesting development with this crop is the change in the focus of production from the north coast to inland irrigation areas, especially in the south. In 1981-82 over 60 per cent of the total crop was produced in the south west (mainly the Shires of Carrathool, Hay, Murrumbidgee and Narrandera). The other main production areas are the north coast (25 per cent) and the north west slopes (11 per cent).

The disease boil smut of maize was found on the north coast. See page 12 for more details.

Grain Sorghum

Higher yields in no-till trials: No-till experiments carried out by a team at the Agricultural Research Centre, Tamworth, have shown that in the short term at least, herbicide treatment has not adversely affected crop yield. Grain sorghum yields in the no-till treatments using the herbicide atrazine were 25 per cent higher than for the mechanically cultivated experiments. Soil respiration and loss of carbon were reduced significantly by no-till.

Barley Quality Laboratory

The installation of equipment for barley quality evaluation at the Agricultural Research Institute, Wagga Wagga, has been completed and used to evaluate about 2000 early generation, and 500 later generation barley samples.

Other Field Crops

The areas sown to important field crops, other than cereals, in 1981-82 were:

	Hectares
Cotton	75 000
Linseed	1 030
Rapeseed	4 600
Safflower	21 100
Soybean	20 500
Sunflower	33 580
Lupin	15 500

Oilseeds

The area sown to oilseeds increased by six per cent and cotton by 16 per cent compared to the preceding season. Weather conditions for inland raingrown crops were not good but were favourable for irrigated crops and coastal raingrown soybeans.



Centre-pivot irrigated sunflowers.

Cotton

Restricted irrigation water supplies limited sowings in the Namoi Valley but sowings in the Gwydir and Macintyre Valleys expanded substantially. Production, aided by a prolonged season and dry harvest weather, was a record 478 000 bales, an

increase of 40 per cent on the previous season. The average yield for New South Wales approached 6.4 bales per hectare and gross crop returns are expected to approximate \$185 million.

The SIRATAC management system (CSIRO and Department of Agriculture Tactics for Cotton Growing) operated on a commercial basis in 1981-82 for the first time following the incorporation of SIRATAC Limited. The company provided an objective insect pest management service for 8000 hectares of cotton in the Namoi and Gwydir Valleys with good results. Further development of the system for irrigation management was undertaken. Continued research into nitrogen applications to cotton showed that preplant and side dressing applications were more profitable than a single preplant application.

Rapeseed

The Department released the low erucic acid, blackleg disease-resistant, *Brassica campestris* rapeseed named Jumbuck. Jumbuck was up to 15 per cent higher yielding than Span in the absence of blackleg and even more superior when blackleg was present. Certification of 44 tonnes of seed was completed by the end of May, and a further 30 tonnes awaited certification.

Soybean

Development of both irrigated and raingrown varieties for inland areas proceeded well at the Agricultural Research Station, Narrabri. Breeder's seed production of three lines, each with different potential uses, was initiated for release in 1984. In a cooperative programme with the University of Sydney, further successful testing and basic seed production was undertaken in south western New South Wales towards the naming and release of new varieties for 1982 sowing.

Guayule

The guayule research project, established to examine the prospects for a natural rubber industry in New South Wales, was expanded both in site numbers and in scope. About 110 selected lines from the United States were transplanted at Condobolin Agricultural Research and Advisory Station to establish their characteristics and productivity. The project is evaluating the timing of ratoon harvests and what proportion of the plant should be harvested at any one time. A topsoil pH of less than 5.5 was shown to be deleterious to growth at Condobolin.

A group of U.S. guayule scientists visited New South Wales from 26 March to 12 April to examine the research underway; to study the production potential of the areas visited; and to extend their knowledge and experience to our workers.

The Biological and Chemical Research Institute, Rydalmere, is determining the rubber content of plants from the experimental plots.

Grain Legumes

Winter legumes: The lupin crop was generally disappointing because the dry conditions until the end of May meant that crops were sown far too late. Many growers did not sow at all. The area sown to lupins declined by 3500 hectares, and yields were reduced even further by the hot, dry September.

Summer legumes: Some good crops of mungbeans were harvested near Inverell, but others were disappointing. Most cowpea crops were below-average in yield. A new variety of black-eyed cowpea, Banjo, was released from Tamworth Agricultural Research Centre and performed well in trials in the north west.

Tea

The start of successful commercial production at Clothier's Creek was followed by a further planting near Lismore. Blended tea from Clothier's Creek is being sold locally and in the metropolitan area.

Jojoba

The promotion of syndicate investment in jojoba, particularly in Queensland, has maintained considerable interest in the crop. However, there are no substantiated data on jojoba.

Buffalo Gourd

Considerable public attention has been drawn to this species for oil, protein and carbohydrate production in arid and semi arid areas. Preliminary evaluation does not indicate that it has real potential in New South Wales.

Essential Oils from Native Plants

A continuing survey by the Biological and Chemical Research Institute, Rydalmere, has indentified a number of native species in the State yielding oils with commercial potential. Piperitone, used for the

manufacture of menthol, has been found in high yield in the oil from *Eucalyptus dendromorpha*. Oils rich in cineole and terpinen-4-ol which are used as medicinal oils have been isolated in potentially useful yields from coastal *Melaleuca* species.

Pastures

Pastures and livestock improved after good July 1981 rain and large quantities of spring-grown feed were conserved to replenish very low stocks of hay and silage.

In the second half of the year rainfall was down to 50 per cent of the long term means in many areas. Reasonable quantities of standover feed at the beginning of summer and widespread rain in March alleviated the position, but the year ended with drought declared in 20 whole and six part districts. Top dressing of pastures declined from the high point reached in 1979-80 when 472 000 tonnes of fertilizer were top-dressed on 3.7 million hectares of pasture. Only 383 000 tonnes were top-dressed on 3.0 million hectares in 1980-81 and provisional estimates indicate a similar order of decline in 1981-82. Continuing drought was a major factor, but increasing fertilizer costs and a contraction of net farm income also contributed.

In many tableland areas perennial grasses were reduced or even eliminated by drought and replaced by weeds, notably thistles and barley grass. Perennial ryegrass, followed by cocksfoot and fescue, was the most depleted, with phalaris persisting much better. Reseeding has been limited by unfavourable dry autumns when most pasture sowing normally takes place.

Useful progress continued in introducing new techniques for pasture establishment, using herbicides and direct drilling as the most economical way of resowing drought-affected pastures.

New and improved pasture varieties are constantly being sought by the Department.



Lucerne varieties, introduced from overseas or bred locally in response to the arrival of the lucerne aphids, continued to meet current needs adequately. However, there are no lucerne aphid resistant annual medics for commercial sowing. Whilst Jemalong and Cyprus barrel medics still meet with some success when sowings escape aphid attack, both are vulnerable to aphid infestations which can be very damaging. New releases of annual medics from the South Australian breeding programme, particularly Sephi and Parragio barrel medics give promise of better varieties being available for commercial sowings in about two years time.

Good progress was made in developing, registering and/or releasing a large number of herbage plant cultivars including: a "yellows" resistant kikuyu grass; a more cold tolerant kikuyu grass; a new phalaris with much better seed retention than any previous variety; and a new subterranean clover variety which should be a replacement for Daliak, having a lower formononetin content, more hard seed, better persistence, and more resistance to blue green aphids.

Pasture Response to Lime on Acid Tableland Soils

Reduced pasture production on acid soils is a major New South Wales agricultural problem being studied by chemists at the Biological and Chemical Research Institute, Rydalmere. November harvests from clover-ryegrass and lucerne-phalaris trials on five tableland acid soil sites treated with up to five tonnes of lime per hectare last year, showed significant increases in dry matter yields at lime application rates of 1.25 to 2.5 tonnes per hectare. Other trials with lucerne have been established to measure the effects of lime treatment of acid soils on levels of exchangeable calcium and aluminium; and available boron in relation to lucerne yields. A major part of this work was supported by continuing research funds from the Wool Research Trust Fund.

Spring Application of Superphosphate Preferred

An experiment was designed to test the hypothesis that phosphorus in superphosphate is used more efficiently by pasture when the fertilizer is applied in spring rather than in autumn. Results indicated that a single application in spring is equal to two consecutive fertilizer applications in autumn.

Weeds

Research on nitrophilous weed associations demonstrated that the correct time for sowing pasture species such as *Phalaris aquatica* to replace weeds is critical for establishment and development of surface sown pastures. May, June and July were the best times for sowing on the central tablelands.

The tolerance of a number of existing wheat varieties and advanced lines to soil-applied post-emergence herbicides was examined at Wagga. Several varieties were shown to be sensitive to herbicides in this study, which was financially supported by the Wheat Industry Research Committee of New South Wales.



The Department continually tests the effectiveness of herbicides against weeds such as serrated tussock.

A study on the distribution, ecology and control of *Xanthium* species has shown that noogoora burr was the worst weed of the group. This was because of the difficulty of removing the burr from fleece and the plant's continued spread within semi-arid areas of the State. An empirical model of population dynamics was devised and used to predict the survival of seeds in the soil seed reservoir.

Further progress was made in no-till crop production in northern New South Wales. The work is long-term and aimed at developing a less exploitive, more stable crop production system, with residual herbicide use receiving particular attention.

The release of biological control agents for Paterson's curse was delayed by court action brought by a group of graziers and beekeepers against CSIRO. However, the Department continued to financially support and cooperate with CSIRO in testing biological control agents for alligator weed, water hyacinth, St. John's wort and common heliotrope.

Parthenium weed was recorded in New South Wales for the first time in February, along the Newell Highway north of Narrabri. A local public awareness and publicity campaign and continual surveillance of the highway was carried out but no other sightings were made.

The Weed Research and Demonstration Unit, Orange, conducted 35 trials throughout the State in cooperation with district agronomists, the farming community and agribusiness. Eight field days were held with most interest shown in the alternative herbicides to 2,4,5-T registered for blackberry control.

Remote Sensing

The wheat monitoring programme continued with significant success in determining the area of wheat harvested in the Narrabri district and with reasonable success in the Wimmera region of western Victoria. An agreement with IBM to continue the cooperative

project to March 1983 was signed. It is hoped in this period to examine five shires in New South Wales, with two of them being done in real time.

The remote sensing section conducted an inventory of agricultural lands in the Dubbo region using Landsat data and will be developing the techniques in the Cowra area in conjunction with Cowra Shire.

The Department is using Landsat satellite imagery in a number of ways, including the monitoring of areas sown to wheat.



Irrigation

Water shortages and intermittent drought conditions continued in many river valleys, with only the Paterson and the Murray Valleys receiving more than the nominal allocation.

Within the irrigation areas and districts in the Murray and Murrumbidgee Valleys, the area sown to rice increased by about 20 per cent. Stage 1 of the

Wakool-Tullakool sub-surface drainage scheme was completed and commissioned.

A volumetric allocation scheme for groundwater in the Namoi-Gwydir Basin was introduced by the Water Resources Commission. New applications for licences in the valleys are now being refused.

Finance available from the Water Resources Commission under the *Farm Water Supplies Act*, 1946 was limited and lending was stopped between March and June.

Water for irrigation use was severely restricted in 1981-82.



Horticultural Crops

Citrus

Due to unfavourable seasonal conditions, citrus production only totalled 183 800 tonnes, 26 per cent lower than the previous crop. This resulted in a strong demand for processing oranges, with the Fruit Industry Sugar Concession Committee (FISCC) minimum prices for processing valencias increasing by \$7 to \$105 per tonne at country factories.

Lemon over-production continued with minimum FISCC prices being reduced by \$7, to \$97 per tonne. A poll to dissolve the New South Wales Lemon Marketing Board (established in 1962) was successful.

Citrus plantings increased by a further 76 hectares to 12 314 hectares with 14.4 per cent non-bearing. Coastal district plantings again declined, while new inland plantings continued. These were mainly valencia oranges for processing in the Murrumbidgee Irrigation Area (MIA) including Hillston.

Biological Control of Citrus Red Scale (*Aonidiella aurantii*): Regular surveying of 23 orchards in the main growing districts established that several parasitic wasps *Comperiella bifasciata*, *Aphytis melinus* and *A. chrysomphali* are the most important in a biological control programme. Projections on the number of scale generations per year, when related to temperature and humidity data, should enable an accurate forecast of the need for additional pesticide applications, which may only be necessary in four out of every 10 years.



The increased popularity of citrus juice has led to more fruit, particularly valencia oranges, being produced for processing.

Citrus dwarfing: For many years the Department has been researching the possible use of the dwarfing phenomenon with a number of important varieties and rootstocks. The potential of high density plantings of dwarf citrus trees with characteristics of early production, ease of harvest and better use of input resources was established. Investigations financed by Government and industry were continued to identify the agent which causes graft transmissible dwarfing of orange trees. Preliminary results strongly suggest that viroids are responsible, but an association of viroids with dwarfing trees has not been demonstrated consistently.

Reduction of insecticide residues in citrus: Fumigation trials with oranges continued as part of the Department's programme to develop effective Queensland fruit fly disinfestation treatments which

comply with Australian and overseas quarantine and health requirements. Significant reductions in ethylene dibromide residues were achieved by maintaining at least 40 per cent fruit loading in the fumigation chamber, and increased ventilation of the fruit after fumigation.

Citrus spray runoff losses reduced: Runoff losses of benomyl sprays on citrus were significantly reduced in trials which have tested sprays with added guar gum to improve deposition of the fungicide on the foliage.

Grapes

The estimated vintage of 114 000 tonnes crushed for wine was lower than the previous year, due largely to an unpicked 13 000 tonnes on the MIA. There was a partial recovery from two years of drought in the Hunter Valley where 14 257 tonnes were harvested compared with 10 988 tonnes in 1981.

Weather conditions during ripening and harvest were favourable for winemaking and the standard of 1982 wines in all areas is expected to be above average.

An excellent harvest of currants for drying, together with an above average crop of sultanas, resulted in a total of 14 343 tonnes of dried vine fruit compared with 8984 tonnes in 1981.

The area of grapevines decreased by about 90 hectares over the previous 12 months due principally to removals of Shiraz. In the irrigation areas the surplus of wine grapes, both red and white, led to a recommendation for the removal of 800 hectares in the MIA.

The programme of salinity studies in irrigated grapevines in the Lower Murray area yielded some significant results. Chloride levels measured in leaves taken from overhead sprinkler-irrigated vineyards in 1981 and 1982 were 33 per cent higher than levels in leaves from vineyards irrigated by furrows or low-level sprinklers. Foliar uptake contributed one-quarter of the salt content in leaves from overhead-irrigated vines.

Damage to grapevines in Hunter Valley: The Biological and Chemical Research Institute, Rydalmere, is working in cooperation with the State Pollution Control Commission to examine fluoride and nutrient levels in grapevines in the Hunter Valley. Leaf burn in grapevine leaves was shown to be associated with nutrient disorders such as potassium deficiency and salt toxicity rather than with fluoride contamination from aluminium smelters, power stations or brick kilns in the region.

Technical Officer Margaret Gill analyses wine produced at the Griffith Viticultural Research Station small-scale winery.



Pome Fruits

Estimated production of the apple and pear crop was 82 000 and 14 000 tonnes respectively. Apple production was 24 per cent less than the preceding year due to a biennial bearing problem, but pear production differed little. A departmental study showed that by 1986-87 Australian apple production will be similar to now but pears could decrease by 13 per cent. The New South Wales apple production is forecast to increase by 10 per cent and pears to decrease by 8 per cent. New South Wales will then clearly be the leading apple producing State.

Agreement was reached for the New South Wales Horticultural Propagation Co-operative Society to distribute pome fruit propagation material produced by the Department's multiplication units at the Agricultural Research & Veterinary Centre, Orange. Two classes of material are provided for distribution: virus tested, which is virus indexed; and material which is not virus indexed but is the best source material available. It is anticipated that the distribution scheme will grow appreciably as nursery people and growers become more aware of the long term productivity benefits of using carefully selected propagation material.

Pome fruit pest research: Development and implementation of integrated pest control in pome fruit orchards progressed well during the 1981-82 season. The programme, initially based on the biological control of two-spotted mite by the predatory mite *Typhlodromus occidentalis*, has been complemented by the addition of *Typhlodromus pyri* to control European red mite. Both predatory mites are resistant to a wide range of orchard pesticides. Releases of *T. occidentalis* have been made in 161 New South Wales apple orchards from Tenterfield in the north to Tumbarumba in the south. Surveys showed that *T. occidentalis* existed in many others through natural dispersal. Evaluation of *T. pyri* in 1981-82 confirmed its effectiveness against its host, and 57 releases have now been made in orchards infested with European red mite. Growers can expect to save \$125/hectare/annum on spray materials

District Horticulturist Bruce Valentine of Orange measures the flesh firmness of a pear using a penetrometer. The Department is using this equipment and other indices to research ways of improving the quality of apples and pears marketed in New South Wales.



alone. Industry acceptance of the programme, particularly in the Orange district, was good. The project attracted funding from the Australian Apple and Pear Corporation.

Apples

Results from a five-year study of 150 orchard blocks throughout New South Wales have identified zinc deficiency as one of the main nutrient problems of apples. The disorder is not corrected readily by recommended treatments, but a trial at Uralla showed that zinc sulphate foliar sprays in the spring were the most effective in increasing zinc levels in the leaves, and superior to standard dormant-period sprays.

Control of apple dip residues: A test kit developed by pesticide chemists at Rydalmere is being used by the Bathurst Growers' Co-operative to monitor the loss of diphenylamine (DPA) residues on stored apples to ensure that minimum levels of DPA are maintained to prevent scald damage.

Cooperative research with the University of New South Wales established that diphenylamine as used for apple postharvest dip control of superficial scald will also provide moderately good control of the physiological disorder, soft scald.

Stone and Berry Fruits

Rainfall was generally adequate for stone fruit crops except towards the end of the season when drought conditions returned to most inland districts.

The cherry crop was down by 20 per cent to 3800 tonnes and included 14 000 cartons exported by air. Dessert peach and nectarine crops at 16 000 tonnes and 1900 tonnes were almost identical to last year. Exports of these crops by air increased by some 80 per cent, to 54 000 and 27 300 cartons respectively. The Middle East became a very significant market outlet, only limited by availability of air cargo space. The Japanese plum crop (3900 tonnes) and European plums (1800 tonnes), were only slightly less than 1980-81. Exports of plums by air also increased substantially to 35 000 cartons, with most going to the Middle East.

The MIA canning peach crop of 15 000 tonnes was much higher than expected considering the substantial decline in plantings over recent years. Growers are awaiting the outcome of the Industry Assistance Commission (IAC) Report and the Letona Administrator's Report before making decisions on whether to remove plantings. Canning apricot crops were mostly not harvested due to a blockade of Letona Cannery by growers protesting at reduced prices and restricted intake. Only 770 tonnes were delivered for canning.

The 1982 prune crop of 700 dry tonnes was one of the worst on record with the MIA crop being almost a total failure. Inadequate pollination accompanied by disease in bees was partly blamed. Quality of dried fruit was excellent.

Plantings of stone fruits are expected to remain stable overall.



Department of Agriculture machine harvesting of cherries trial at Orange.

Chinese gooseberries (kiwifruit) are one of the most rapidly developing fruit crops in the State. A study was started this year to assess the nutrient requirements of crops throughout the State, and to establish leaf analysis techniques that determine nutrient status and fertilizer requirements.

Increased plantings of kiwifruit and blueberries appear likely.

Tropical Fruits

While the area grown with bananas dropped by 100 hectares to 6827 hectares other tropical fruits continued to expand. The most notable being macadamias (from 1779 to 2300 hectares) and lychees (from 73 to 130 hectares).

New South Wales banana growers became concerned with increased Queensland production and withdrew from national advertising after failing to reach agreement on means of regulating oversupply. They also obtained premises in Coffs Harbour to construct 10 ripening rooms so that higher quality fruit could be supplied to consumers with greater returns to growers.

The preservation of prime agricultural land became an important issue on the north coast where tropical fruits have potential for expansion. Technical advice was given to local councils to assist in the drawing up of policy guidelines.

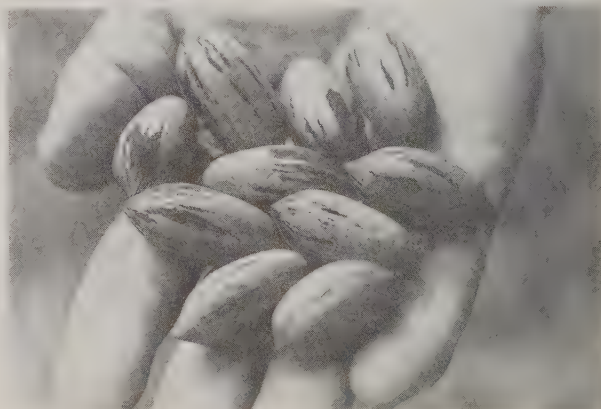
Deciduous Tree Nuts

The demand for nut trees continued to exceed nursery supply.

Pecans: Pecan nuts are a high value crop, and leaf analysis techniques and nutrient standards are being established by chemists at the Biological and Chemical Research Institute to improve production and quality. It was found that potassium and zinc deficiencies can be serious, although the zinc deficiency can be controlled by three foliar sprays during the year.

Production of pecan nuts from the large plantation at Biniguy near Moree exceeded that of previous years, yielding over 1800 tonnes. Seasonal conditions were favourable for the maintenance of good tree health and for the harvest operation.

Production of pecan nuts continues to increase.



Pistachios: The development of small pistachio plantings continued in inland districts including a demonstration planting at the Agricultural Research and Advisory Station, Dareton.

Ornamentals

The ornamental horticulture industry produces bedding plants, house plants, container plants, shrubs, trees (including fruit trees) and cut flowers. Over the past 15 years, the value of sales increased from \$5.5 million to \$67.7 million. Further industry expansion occurred during the year particularly the erection of greenhouses on established nurseries, and the establishment of new properties in coastal areas for the production of ornamental plants.

Considerable interest in the growing of Proteaceous plants prompted the formation of the Protea Association of N.S.W.

The nursery industry established the Australian Nurserymen's Export Company Ltd to promote and facilitate the export of nursery produce.

Vegetables

The fresh tomato market was dominated by the almost total adoption of the variety Floradade. Because of its long shelf life, wastage has been reduced, but some harvesting of immature fruit affected flavour and edibility. The year saw record yields of processing tomato crops in the Lachlan Valley but poor yields in some crops near Jerilderie due to the ravages of *Phytophthora* root rot.

Broccoli growers used crushed ice to maintain their product in fresh and top class condition during marketing. Prices were rewarding and some providores developed an air freight export market to Singapore.

Record prices for onions prevailed in late winter, with some reaching over \$2000 per tonne. This was due to higher than normal wastage losses and because significant quantities were committed for export. New Zealand onions were imported until the new crop became available from Queensland.

The new pumpkin variety, Jarrahdale, was very well received by the market and brought prices almost double those offering for others.

Sporadic occurrence of bitter and poisonous zucchini fruit is thought to be due to genetic factors which lead to the formation of the substance cucurbitacin E.

Interest in garlic was maintained in the MIA with plantings substantially up on previous years.

A working party, representative of various sections of the potato industry, examined seed certification and the introduction and evaluation of new varieties from other States and countries. Various procedures are under consideration.

The value of cellpack seedlings over direct seeding or bare root transplants was increasingly recognised. The practice has been assisted by the invention of a new transplanting machine by a departmental officer and a farmer.

Trickle irrigation and black plastic mulches were used on a greatly increased scale by vegetable growers. Advantages are higher yields, better disease control and more efficient use of water.



About 6 million kilograms of mushrooms are produced in New South Wales each year.

Postharvest Handling

In New South Wales the value difference between fruit and vegetables on the farm and when they reach the consumer is estimated at over \$200 million each year. Much of the difference is made up of packaging materials, chemicals, temperature control facilities, transport, and other equipment used for postharvest handling and marketing. Losses in produce due to physical damage, rots, physiological disorders and general poor handling still occur regularly. In view of this situation and in response to industry requests, the Department re-organized its service in the postharvest area. A new programme was designed to help the flow of research findings to industries, and to accumulate information on problems of produce quality in the market place.

Beef

Trends in the Industry

The numbers of cattle in the State was kept at 5.3 million head by a combination of low prices and drought. This was a drop of 13 per cent over the 1979-80 figure. The reduction in numbers occurred to a greater extent on the tablelands (14 per cent) and slopes (10.13 per cent) than on the higher rainfall areas of the coast (1.7 per cent).

The reduction in numbers in turn contributed to the closure of more abattoirs during 1981-82 (four abattoirs and one slaughter-house).

These influences on the industry led to:

- more interest by producer organisations in improved marketing systems;
- greater awareness of the need by producers for water and fodder conservation and the need to reduce drought risk by restricting the expansion of the breeding herd;
- a more critical analysis of breed performance and more attention being given to trade requirements by producers; and,
- greater interest in cross breeding.

Marketing

Considerably more interest was shown during the year by producers and their organisations in more objective methods of marketing such as auction by description and discussion on possible stabilisation schemes for the beef industry.

The beef cattle section of the Department assisted the industry to develop objective marketing systems through its role with the Livestock Marketing Study Group, which has representatives from all sections of the industry.

Livestock appraisal courses were established to assist both agents and producers develop skills in the assessment of live cattle for slaughter. The seven schools held during 1981-82 were successful and plans were drawn up to conduct a further 14 during 1982-83. The success of the courses was partly due to outstanding cooperation from abattoir management at all centres.

Genetic Improvement of Beef Cattle

Considerable financial and physical inputs into genetic studies of beef cattle were made by the Department and the industry (Australian Meat Research Committee funds) over recent years. Some examples are: the selection work at Trangie; the Grafton cross-breeding trials; the establishment of the Animal Genetics Breeding Unit (AGBU) at Armidale, with its development of the National Beef Recording Scheme; and the Sire Reference Scheme.

Study results released during 1981-82 were particularly timely for producers, who are looking for ways of reducing their overhead production costs by producing more beef per breeder. Despite the drought, two breed societies cooperated with AGBU to rank a total of 126 sires, on the progeny test for calf weight at 200 days as a pilot Sire Reference Scheme.

Nutrition

Seventy-five per cent of production costs for beef cattle are feed costs and the continuing drought highlighted the need for better nutritional



Bulls from the high and low weight gain selection lines at Trangie Agricultural Research Centre. Both are 20 months of age.

management. The Department's beef cattle officers cooperated with other advisory officers to provide beef producers with the latest information on the drought feeding of beef cattle.

The Feeds Evaluation Unit at Glenfield Veterinary Research Station gave considerable assistance to beef cattle advisors by analysing the nutritional value of feedstuffs used in drought feeding of cattle.

Establishment of Special Livestock Officers

To further assist the beef industry the Department established three specialised positions (breeding, nutrition and marketing), and filled these positions with senior beef cattle officers.

Brucellosis Eradication Campaign

All areas of New South Wales were actively engaged in the campaign to eradicate brucellosis in beef and dairy cattle. The Provisionally Free Area was extended in August 1981 and March 1982 by the inclusion of a further 10 Pastures Protection Board Districts. It now contains 83 per cent of the State's cattle herds.

Drought feeding of cattle in the New England district. Samples of feed can now be forwarded by district officers to the Feeds Evaluation Unit for testing. Producers are then advised of the exact nutritional value of their drought feedstuffs.



The prevalence of brucellosis dropped significantly in 1981-82. Progress over the last six years, as recorded in the Australian National Animal Disease Information Service (ANADIS) computer, is shown below:

Brucellosis prevalence in New South Wales
1976-1982

Date:	(30th June)						
	1976	1977	1978	1979	1980	1981	1982
Herd prevalence (per cent)	29.05	29.5	10.1	9.75	4.78	1.31	0.49
Cattle prevalence (per cent)	3.1	3.1	1.3	0.21	0.17	0.06	0.03
Number of known infected herds	881	8 983	6 949	3 446	2 081	644	262

Details of progress in herd status and regulatory activity are summarized in Appendix II and details of serum sample testing over the past seven years are contained in Appendix I.

Field testing of about two million cattle involved almost 28 000 property visits and the testing of almost 20 000 herds.

Movement controls applied to cattle were relaxed as more of the State achieved Provisionally Free status. There was less cattle movement to agistment than in the previous year as seasonal conditions were better, and brucellosis staff could concentrate on testing rather than on enforcing movement controls.

Extensive advisory work supported the campaign. Emphasis was on keeping disease-free herds "clean" rather than on ridding infected herds of brucellosis.

Cattle owners and the industry were kept informed of progress largely through farmer newsletters and leaflets distributed by staff when testing cattle. Further posters were produced encouraging farmers to buy brucellosis-free cattle.

The changing brucellosis status of different areas required a change in stock movement restrictions. Advisory material was continually updated and widely distributed. The response was excellent. Display boards explaining the campaign objectives were in demand for many country shows.

Tuberculosis Eradication Campaign

Bovine tuberculosis (TB) showed a slight resurgence during 1981-82. This was attributed to breakdowns in cattle due to drought stress in the previous year, and which was only detected after spread occurred in a few individual herds. Despite the increase in the number of TB reactors (482 in 1981-82 compared with 108 in 1980-81), these were confined to a few herds, most of which were detected by the abattoir traceback system.

The TB eradication policy was reviewed and the Department will continue to treat TB as something approaching an exotic disease. There were only 22 herds in quarantine in June 1982. This is an increase from the previous year's low of 14 herds, justifying the increasingly stringent eradication methods.

Details of herd status and regulatory activity are shown in Appendix II.

Cattle Tick and Tick Fever Control

Control of cattle tick within the infested area of north eastern New South Wales is the responsibility of the Board of Tick Control, under the jurisdiction of the Department of Agriculture. The control programme prevents cattle tick spreading from the Tick Quarantine Area TQA and Queensland to the rest of New South Wales.

Since the report of the Cattle Tick Review Committee was released in April 1981, 30 of the 46 recommendations have been implemented.

Introduction of Queensland cattle: Following the change of policy to allow introduction of stud cattle from tick infested country in Queensland into the TQA, procedures were developed to prevent the introduction of tick fever. The number of stud cattle entering under the new policy increased from eight in 1980-81 to 41. The figures reflect the desire of owners to introduce *Bos indicus* blood.

Policy dipping programme: The Bonalbo and Legume areas were re-introduced to the annual dipping programme because infestations found in the previous year indicated a potentially dangerous situation. The move was successful as no ticks were found. This year, all 2247 holdings and 243 602 cattle were in the policy dipping programme.

Projected release of areas: South Tabulam, provisionally released from quarantine in January 1981, was confirmed free and the area is now regarded as clean country. The discovery of three infestations in the North Tabulam area, and two in the Cullendore area meant they could not be released.

Cattle tick infestations: Even though Bonalbo and Legume areas, (which are outside the examination area), produced no infestations there was only a small decrease from 43 in 1980-81 to 38 in the TQA. This was because of a marked increase in the Lismore and Bangalow areas from 10 in 1980-81 to 26 last year.

Promicide breakdown and toxicity: In 1980-81 promacyl, the active ingredient of Promicide ^(R), broke down in 45 of 288 dips to a toxic metabolite, promecarb. Research showed that microbes were the causative agent. This year it was shown that inhibition of breakdown should occur if the pH was lowered. The Promicide concentration in problem dips was adjusted and triple superphosphate added. It is hoped this measure will succeed as it is worth persevering with promacyl since the tick has not developed resistance to it.

Sheep

Trends in the Industry

The New South Wales sheep and wool industry continues to be one of the State's largest rural enterprises, vying with wheat for first place in terms of value of production and contribution to export income in the State.

(R) Registered trade mark

The continuing drought had little further effect on sheep numbers, live sheep values and the production of meat and wool — all of which had been reduced in earlier stages of the drought.

The 25 000 New South Wales sheep producers earned \$680 million from the sale of wool, sheep meat and skins in 1980-81 and a preliminary estimate predicts earnings of \$705 million for 1981-82.

There has been a slight increase in the total number of sheep in New South Wales, with an estimated 48 million for 1981-82, compared with 46 million for 1980-81.

Live sheep values were generally kept steady: by the wool reserve price scheme, which increased at about the same rate as inflation; by the live sheep export trade, which placed a floor in the market; and by competition for stock from former sheep owners re-entering the industry after trying cattle in the 1970s. Competition with increased cropping, for land and other resources, tended to reduce the rate of increase but the effect was offset by the above factors.

However, like other sections of primary industry, the sheep industry is feeling the effects of increased production costs.

Sheep and lamb prices remained at very similar levels to the previous year until the autumn of 1982 when lamb prices were up to 20 per cent cheaper than they were twelve months previously.

New South Wales prime lamb production, which is generally kept steady by a local market which consumes 95 per cent of production, did not vary much. However, drought did disrupt the seasonal marketing pattern: summer lambs held over for better finishing conditions were eventually released in winter, swamping the market and forcing prices down by between 10 and 20 per cent.

Wool has continued to be more viable. At the start of the wool selling season the reserve price for wool was set at 410c per kilogram clean, an increase of 45c or 12.3 per cent on the previous year. However, clean wool prices were reduced by the increase in vegetable fault and dust associated with the drought.

Advisory

During the year five new sheep and wool advisory districts were created at Mudgee, Coonamble, Hillston, Armidale and West Wyalong, bringing the total to 27.

Sheep and wool advisers in all districts devoted considerable attention to advisory programmes aimed at the economically important production areas such as genetic improvement, nutrition, disease control, improved lamb marking percentages and efficient sheep handling systems.

Research

The Department conducted research into a wide range of factors affecting sheep production from the establishment of genetic parameters using nutrition to the development of ways of determining single and multiple pregnancies.

Two research highlights during the year were: the development of an ultrasound technique for the detection of multiple pregnancy in ewes; and the success of the first stage of the Hyfer programme at the Agricultural Research Station, Cowra.

A swift and accurate field technique to determine litter number in pregnant ewes has been the subject of a concerted world research effort during the last decade. Audio ultrasonics, x-rays, endocrine and rectal-abdominal palpation techniques have been tried but were either unsatisfactory or inaccurate.

In the first year, eight real-time ultrasonic scanners, developed for use in human medicine, were tested to identify the scanner and transducers most suitable for use with sheep. Two promising scanners tested gave over 97 per cent accuracy. This development will provide the researcher or flock manager with accurate information on the breeding flock so that he can manage nutrition according to size and thus improve the efficiency of sheep production.

The Hyfer programme aims to produce a new self-replacing breed of sheep with high fertility and an extended breeding season for use in the prime lamb industry. It is a long term programme with three distinct phases: a generation phase (1978-83); a test/selection phase (1982-87) and a commercial evaluation phase (1986-90). The breeding programme produces Hyfer ewes and rams by crossing selected high fertility Merino rams with Dorset ewes. So far 400 Hyfer ewes have been produced, and early results such as lambing percentages of 180 to 200 per cent (about double the present average in the prime lamb industry) indicate that this project may have considerable future benefits for the prime lamb industry.

Services to industry

The Department operates two services for the sheep industry, both aimed at assisting producers with genetic improvement of sheep:

Fleece Measurement Service: The service is operated through the Agricultural Research Centre, Trangie, and provides breeders with greasy fleece weight and fibre diameter measurements for individual rams. During the year 47 000 samples were tested, an increase of 14.5 per cent over the previous year.



Hyfer ewes and lambs at the Agricultural Research Station, Cowra.

Meat Sheep Sire Testing Service: The service is operated from the Agricultural Research Station, Cowra, and its operating expenses are funded by a grant from the Australian Meat Research Committee. It provides breeders of British-breed sheep with measurements of growth rate and fat depth on live animals. This was the first full year of operation and data were collected from a total of 8824 rams.

Sheep Blowfly Research

Insecticides form a major component of the methods used to protect sheep against blowfly strike. Research at the Biological and Chemical Research Institute, Rydalmere, concentrated on testing the efficacy of insecticides to control sheep blowfly, with particular reference to insecticide resistance.

The blowfly has evolved resistance to both organophosphorus (OP) and carbamate insecticides, and resistant strains exhibit low-order tolerance to other chemical groups. The major OP-resistance mechanism was identified as an esterase enzyme which is controlled by a single gene on chromosome 4. Electrophoretic studies have been partly successful in identifying this resistance mechanism, and metabolic studies on blowflies have indicated two other resistance mechanisms. The presence of the latter may explain the cross-tolerance to other chemicals. The laboratory at Rydalmere has become the centre for testing resistance in the sheep blowfly and it receives samples of larvae taken from sheep with flystrike from properties all over Australia. These samples are compared with laboratory reference strains to monitor levels of resistance in field populations of the sheep blowfly. The work is supported by funds from the Australian Wool Corporation.

The aim of the blowfly research carried out at the Veterinary Research Station, Glenfield is to provide new information about why and how fleece rot and body strike start in sheep. This approach underpins efforts to develop effective methods of body strike control that avoid the use of insecticides. The studies, carried out in collaboration with CSIRO, led to investigations on the effect of vaccinating sheep against fleece-rot as a method of preventing body strike, and, in the longer term, will lead to the selection and breeding of high wool-producing sheep for resistance to fleece-rot and body strike.

The Department cooperated with chemical companies, CSIRO and universities to develop a sheep footrot vaccine.



Ovine Footrot Vaccines

Following the registration of a commercial multivalent *Bacterioides nodosus* vaccine in June 1981, the Veterinary Research Station, Glenfield was involved in the investigation of apparent failure of the vaccine to protect sheep against natural footrot challenge in several flocks. Antibody responses to the vaccine were found to be uniformly low. The apparent lack of potency of these early batches of vaccine may have been due to mishandling. Antibody responses to a later batch were better. A second commercial vaccine was subsequently registered.

Ovine Brucellosis Accredited-Free Flock Scheme

At 30th June 1982, 304 flocks of 16 breeds had achieved accreditation. The best support came from breeders of British-breed sheep. There were very few suspensions of accreditation due to disease breakdown detected at the annual retesting which suggests that criteria for joining the scheme are satisfactory.

Research commenced on the antigens from *Brucella ovis* which may provide a source of diagnostic reagent to further improve our diagnostic capability.

Goats

Trends in the Industry

In recent years there has been a steady increase in the number of new producers entering the industry, particularly on the coast and tablelands of New South Wales.

The new producers require basic information on a wide range of subjects relating to goats and to basic animal husbandry matters.

The Australian Bureau of Statistics shows that there were 65 804 domesticated goats held by 1257 producers as at 31st March 1980.

There are four main strands in the goat industry: milk, mohair, cashmere and meat producing goats. Each of these goat enterprises is relatively small in comparison to other forms of livestock production.

The goat milk industry is estimated to involve 5000 milking goats run on smallholdings in and around large towns and cities.

Mohair production for 1981 in New South Wales was estimated at 30 000 kilograms with an average gross price of \$6.00 per kilogram. Some 12 000 cross-bred and pure-bred goats are run in New South Wales for the production of mohair.

The cashmere industry is based on feral goats, many of which have the potential to produce high quality down. It is estimated that 15 000 to 20 000 goats are being intensively selected and bred for cashmere production. During 1981-82 the main purchaser and user of cashmere established a price of \$85.00 per kilogram for top quality Australian cashmere.

The goat meat industry is also based on the feral goat population and during 1981-82, 300 tonnes of goat meat valued at \$395 000 were exported. This was about half the value of exports for the previous year and was largely due to the drought.



Feral goats have been the basis of the goat meat industry in New South Wales and now they are also being used for the development of the cashmere industry.

Advisory

In order to supply information on goats to this growing industry the Department of Agriculture re-designated a sheep and wool position as Livestock Officer (Goats). The officer occupying this position has extensive experience and statewide responsibility in all areas of goat production and provides technical support to all district livestock officers.

Individual goat producer inquiries are serviced by livestock officers (sheep and wool).

Regulatory

The *Pastures Protection Act*, administered by the Division of Animal Production, was amended during the year to include goats. Goats are now treated under the Act on the same basis as sheep for rating, branding, earmarking and permits to travel.

Research

Two livestock research officers are involved in research on the production of meat and fibre from goats with particular emphasis on upgrading of feral goats for cashmere production. Selection procedures, management practices and cashmere harvesting methods are being developed.

The use of goats as a management tool for the control of weeds has also received considerable study.

Goat Health

A survey of the incidence and causes of mortality in goats was conducted. Herds in the County of Cumberland were monitored and dead goats were submitted by veterinarians from other districts. The overall mortality rate in the 19 herds was 10 per cent with 59 per cent of deaths occurring during the three month spring kidding season. The major diseases and/or causes of death were found to be enterotoxaemia, Johne's disease, pneumonia, retrovirus, arthritis and pregnancy toxemia.

A herpes virus was isolated from goats suffering from an outbreak of vulvo-vaginitis. This was the first such isolation in Australia. A serological test for antibody to the virus was developed and used to demonstrate that several herds, surveyed via blood serum sampling in 1981, contained animals which had previously been exposed to the herpes virus.

Anthelmintic resistance in the major species of internal parasites of goats is becoming a serious problem in goat husbandry. On some small properties where grazing management procedures cannot be practised, parasites have developed multi-resistance to many of the anthelmintics presently available. An advisory programme on the treatment and control of anthelmintic resistance in internal parasites of sheep and goats was started.

The Division of Animal Health is currently evaluating the disease status of goats, particularly anthelmintic resistance and Johne's disease.

Dairying

Trends in the Industry

The number of registered dairy farms fell further to 3096 during 1981-82, a fall of almost 5 per cent.

This was a slower rate of decline than in previous years, due partly to the effects of milk quota re-allocation and the introduction during the year of a policy to allow new dairy registrations. By the end of the year 61 applications from prospective dairymen had been approved and seven of these had started operation.

Milk production for 1981-82 reached 872 million litres, a rise of 3.3 per cent over the previous year's figure. About 65 per cent of the State's milk production was used as market milk.

Mastitis Advisory Service

This service, provided jointly by the Department and the Dairy Industry Marketing Authority, assists in the control of mastitis in dairy herds. The bulk milk cell count (BMCC) provides an objective measure of mastitis level at the herd, factory, district and State levels.

The Dairy Industry Marketing Authority now uses the BMCC in determining criteria for the rejection of milk when "yellow stain" is detected in the filtration residue test. If a herd's monthly count is below 500 000 cells per mL, the farmer now receives a warning rather than rejection if yellow colour is detected. If the BMCC is above 500 000 the farmer is treated as previously.

The New South Wales average BMCC continued to fall during the year. In June 1982, it stood at 385 000 cells per mL., well on the way to the Department's target of 300 000 cells. This figure represents an estimated annual saving of \$9.7 million over the 1975 figure. However, the loss is still an estimated 31 million litres of milk per year.

There is a wide variation in counts among groups of factory suppliers. For example, suppliers to Jamberoo Co-operative showed a 12 month average of only 259 000 cells per mL whereas milk supplied to another factory had an average cell count of 500 000 cells per mL. At one large factory the high cell count represents a loss of 72 000 litres of milk per week.

The potential for continued improvement is demonstrated by the winner of this year's Bulk Milk Cell Count Competition who recorded an average count of only 75 000 cells over the 12 month period.

Mastitis in Dairy Cattle

Methods for detecting mastitis: A comparative study was made of the use of somatic cell count (SCC), electrical conductivity and bovine serum albumen concentration as diagnostic methods. Although the optimal threshold level varied between herds, SCC was superior to the other two methods. The effects of lactation stage or lactation number had a minor effect on the SCC compared to the presence of *Staphylococcus aureus* infection.

Teat disinfection: Two methods of teat disinfection after milking, (teat dipping and teat spraying) were compared. No differences were found between the two methods in the rates of new intramammary infection. The volume of disinfectant applied varied from 7.4 to 8.9 mL per cow per milking for dipping,

and from 5.4 to 24.4. mL per cow for spraying. Careful application of the spray was necessary to get satisfactory coverage of the teat. Atmospheric levels of iodine in herds applying iodophor disinfectant by spray were well below the maximum level set to ensure operator safety.

Other Diseases of Dairy Cattle

See section on beef cattle for information on tuberculosis, brucellosis, cattle ticks and tick fever.

Dairy Herd Improvement

The need for greater adoption of herd improvement practices at the farm level became more evident during 1981-82.

Herd recording membership increased from 866 to 876 farmers, with a further 60 farmers wishing to enrol at the end of the year.

Herd recording statistics again demonstrated the marked superiority of artificially bred over naturally bred cattle. In all groups artificially bred cattle produced over 300 litres per cow more than naturally bred cattle: a factor that will help achieve the Department's objective of increasing the number of artificially bred cattle from 25 per cent to 50 per cent of the State's dairy cattle population by 1985. The Department's artificial breeding field service officers trained 294 farmers in the techniques of "do-it-yourself" insemination during the year.

The results of the State's "sire evaluation plan" are becoming more evident, with semen from outstanding Friesian and A.I.S. bulls now available to farmers from the Department's Graham Park Breeding Service at Berry.

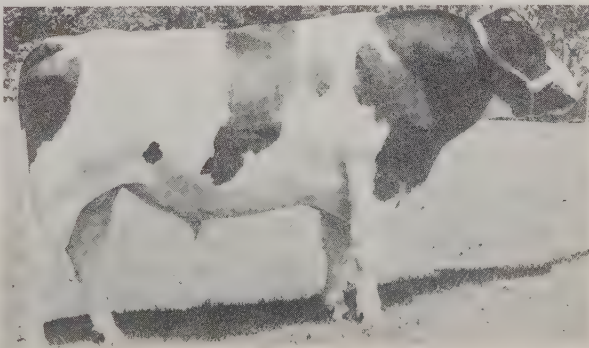
Farm Milk Quality

The quality of farm milk was excellent throughout the year with 99 per cent of total milk production passing all milk quality acceptance tests at receival factories. This is a slight improvement on the previous year's result and reflects a great deal of credit on the State's dairymen.

The Department's farm milk quality assurance programme was also a major contributing factor in achieving such a satisfactory result.

The programme, which started early in 1981, used all appropriate resources of the Department to promote among dairymen sound hygiene, herd health and dairy cattle nutrition practices. It will continue through 1982-83 with the objective of improving it even further.

The top Friesian bull at Graham Park Breeding Services, 'Romanac Ned Premier', with a breeding value of +276 litres of milk and +9kg fat. The breeding value is a measure which indicates to farmers the animal's potential to increase the milk production of its progeny.





Livestock recording systems are important in all agricultural industries but particularly so in the intensive industries like poultry. The Farm Management Recording System (Eggs) has been developed by the Department to help farmers analyse their poultry enterprises.

Poultry

Trends in the Industry

Egg production: The number of farms continued to decrease whilst the size of farms increased during the year. At the end of May 1982, 612 egg producers with about 4 million hens were producing about 15 per cent more eggs than were required for the domestic market. The average farm size was 6500 hens.

Despite a 48 per cent reduction in the number of hen quotas since the introduction of the scheme in 1972, the industry is still troubled by surplus production. This has largely been due to significant increases in the efficiency of production.

High equalisation costs, applied to cover the loss of exporting surplus eggs, decreased net returns to producers for most grades of eggs. Hen quotas sold at about \$14.50 per hen, but trading was influenced by uncertainty about the future of the industry.

Poultry meat production: For some years the chicken meat (broiler) industry showed an annual rate of increase of about 15 per cent and a substantial surplus accumulated in cold stores. In order to clear stocks, processors cut prices and then cut production by reducing stocking rates and throughput on contract farms. This reduced returns to growers.

Improvements in broiler genetic potential continued. Commercial meat chickens frequently reached a liveweight of over 2kg at 53 days of age with a feed conversion ratio of 2:1.

The production of turkeys, ducks and geese showed a steady increase whilst there was a marked increase in the production of game birds (pheasant, guinea fowl and quail) during the year.

Legislation

Egg marketing: In April 1981, the New South Wales Minister for Agriculture appointed a two man committee of enquiry to review and make recommendations on the production and marketing of eggs in New South Wales. The committee completed its report in November 1981, and it was tabled in Parliament in March 1982 and made available to the industry. The report recommends the introduction of new legislation and sweeping changes to the system of egg marketing in New South Wales. The report met with a mixed reception from the Industry.

Poultry Meat Marketing

Three integrated companies are either directly or indirectly responsible for the production and marketing of 80 per cent of the chickens consumed in New South Wales. No further consolidation is expected in the near future.

The State Chicken Grower's Associations have formed a national federation and appointed an executive director.

About 75 per cent of meat chickens are now sold fresh, rather than frozen. Sales through fast food stores and supermarkets are increasing relative to sales through other outlets.

The *Poultry Processing Act*, 1969, was amended in May 1981, to include licensing charges and uniform standards of hygiene and construction. Staff was increased from three inspectors to seven for handling the increased range of duties required under the Poultry Processing regulations from 2nd April 1982.

The *Chicken Meat Industry Act* provides for a chicken meat industry committee to facilitate the negotiation of contracts and prices between chicken growers and processors. The committee has before it proposals for turkey growers to be covered by similar legislation.

The Standing Committee on Agriculture of the Australian Agricultural Council (SCA/AAC) appointed a working party on chicken meat industry legislation to examine existing legislation throughout Australia and report on required legislative amendments and their implications. A draft report by the working party has been presented to SCA/AAC.

Poultry Research

The poultry industry is highly integrated and increasingly conducts its own production research. The Department of Agriculture's main research input has become its disease work, undertaken at the Veterinary Research Station, Glenfield, particularly the monitoring of vaccines and disease diagnosis. These are two areas that cannot be undertaken by private industry.

For these reasons the Premier announced in May 1982, the State Government's intention to withdraw from poultry production research over a two year period. The poultry production research currently being undertaken at the Poultry Research and Advisory Station, Seven Hills, will be wound down. With the exception of the administrative and laboratory buildings and 4.5 hectares of land, the area will be available for other government purposes.

Poultry feedstuff evaluation: A gas chromatographic procedure has been developed for the rapid analysis of amino acids in protein feedstuffs in a research project at the Biological and Chemical Research Institute. The project is supported by the Australian Chicken Meat Research Committee.

Chick bioassays have been used in another project to determine the biological availability of protein amino acids in poultry diets. It was shown that meat meal and cottonseed meal were the most likely of the economically important protein concentrates to have reduced availability of lysine to the chick.

Advisory Services

Advisory officers are currently engaged in a variety of programmes related to: the use of farm management records in planning and decision making; the relationship between shed temperatures, feed consumption and egg size; brooding conditions; energy conservation; random sample layer tests; diet formulation; and feedstuff evaluation.

Farm Management Recording Scheme

The computerised farm management recording scheme (eggs) initiated in New South Wales has become a national scheme with support from egg industry research funds. A total of 120 flocks are now participating in the scheme, including about 70 from other States.

New South Wales was host for a national workshop on farm management recording schemes for the intensive livestock industries. The workshop was attended by representatives of all State Departments of Agriculture plus invited industry people. A number of valuable guidelines for action were developed during the workshop, most of which are now being implemented.

Workshops for People in the Poultry Industry

New South Wales has also been successful in having its series of workshops for poultry people accepted as part of the industry's national training programme. Workshops were held during 1981-82 for: breeder farm and hatchery managers; broiler servicemen; broiler growers; layer servicemen and people managers.

Pigs

Trends in the Industry

The past year saw a change in profitability for pig producers. Prices rose by 30 cents to 40 cents per kilogram, while feed prices dropped by \$20 to \$30 per tonne after the cereal harvest.

As at 31st March 1981 there were 5817 piggeries with a total of 787 000 pigs. There were 101 000 sows and 8680 boars. For the 12 months ended 30th June 1982, the number of pigs slaughtered was 1 085 000 pigs (55 000 tonnes of pig meat), a drop of 106 000 pigs from the previous year.



Whilst auction sales are still popular, pigs like these can now be sold before they leave the property using a new method of selling called Sale by Description.

Sale by Description

Sale by description has been operating at Homebush since 7th August 1981 and up to 30th June 1982 a total of 17 800 pigs had been sold through this system. The stock were delivered to 13 abattoirs throughout New South Wales. A total of 180 producers used the system and 14 agents catalogued stock.

New South Wales Pork and Bacon Fair

The second Pork and Bacon Fair was held in Tamworth in July 1981, and the Department played a major role in the organisation of the Fair which brought all sections of the industry together. The third Fair will be held in Gunnedah in October 1982.

Swine Branding and Introduction of Pig Movement Notes

During June 1982 briefing sessions were held for livestock officers and Pastures Protection Board staff on the changes to swine brands and the introduction of pig movement notes. The new legislation comes into effect as from 1st July 1982. It is anticipated that it will take 12 months for all producers to change over to the new brands.

Pig Research

Feeding experiments were conducted at Wollongbar Agricultural Research Centre to determine the nutrient value of new feedstuffs such as chickpeas, pigeon peas, fish silage, brewers yeast and soybeans. A greater awareness was developed of the likely role of stresses, particularly management and heat stresses, on the growth and reproductive performance of pigs.

The Meat Industry

The meat slaughtering industry continued in a depressed state. Of the 31 export-registered abattoirs which operated three years ago only 17 continue to operate as such, 10 having closed and four now operating as non-export abattoirs.

Meat Inspection Service

The State Meat Inspection Service inspected livestock awaiting slaughter to determine clinical health, and inspected carcasses to determine fitness for consumption. Other functions included the preslaughter moulting of lambs; preslaughter sanitation check; supervision of interstate and local trade loadout of carcass meats; the re-inspection of meat introduced into the Sydney metropolitan abattoir area from interstate; and the collection and feedback of information on livestock diseases to field staff.

On 23rd June 1982, the Premier wrote to the Prime Minister offering to transfer the N.S.W. Meat Inspection Service to the Commonwealth in order to assist the establishment of a single national inspection service.

Carcass Classification and Related Marketing Schemes

Abattoirs in New South Wales continued with trading trials coordinated nationally by the National Carcass Classification Supervisory Committee, on which the Department of Agriculture is represented. The trials examined the feasibility of operating classification systems and related marketing schemes for beef, sheep and pig carcasses.

During the year trials on beef carcass classification continued at Blayney and Homebush. Funding of the additional labour for the trials has been progressively

taken over by the participating abattoirs. Where used, special tickets are provided through a Commonwealth beef classification grant. Trials at Wollongong and Gunnedah were terminated as little use was being made of the classification measurements. The beef and sheep trials at Wagga ceased with the closure of the abattoir. At Casino, a modified form of beef classification was introduced as part of the service to abattoir users. At the request of a major supermarket chain, beef carcass classification was introduced for trading purposes on a "user pays" basis at Dorriggo, Wyong and Canberra.

Lamb classification remained available on request at Blayney and the experience gained in procedures and trading will be included in the conditions of sale for a lamb auction selling system based on classification which will commence in the central west later in 1982.

Sixteen abattoirs provided the back fat depth measurement known as P2 which is the system proposed for national adoption for pigs. Most of these abattoirs participated in the pig auction sale by classification which started on 7th August 1981.

Measurements taken in classification procedures were monitored by the State Meat Inspection Service.

Honey Industry

Trends in the Industry

The honey industry was depressed during 1981-82 due to a decline in honey prices and an increase in costs, particularly fuel costs, caused by the continued drought which forced beekeepers to move hives longer distances. This has prompted the industry to look at setting up an organised marketing system and the Department is assisting with advice on a possible stabilisation scheme.

Disease

During the year there was a dramatic decrease in the incidence of American foul brood disease. In 1980-81 compensation paid to beekeepers amounted to \$34 823 whereas in 1981-82 this figure had dropped to \$16 708.

Warren Jones, District Apiculturist at Dubbo, inspecting hives for the presence of disease.



Research

The Honey Research Advisory Committee contributed \$5100 for the examination of viral diseases of bees in New South Wales.

Other research carried out during the year indicated that Cobalt 60 irradiation of beekeeping equipment was an effective way of killing all the spores of the causative agent of American foul brood. The cost of this treatment is about \$2.00 per box and this approach is considered to be a major breakthrough in disease control.

Quarantine

The Commonwealth Department of Health established a honey bee quarantine facility at Eastern Creek, at a cost of \$168 000. All queen bees entering the country, except from New Zealand, will be held in permanent quarantine at this facility. Only larval stages of offspring will be released for propagation.

Feral Pigs

During the 1981-82 financial year \$100 000 was allocated to assist Pastures Protection Boards to control feral pigs. This grant follows the recently completed pilot feral pig control programme which the Government initiated in 1978 and which involved 13 north-western Pastures Protection Board districts.

The latest allocation was made available on a statewide basis. Boards with significant feral pig problems were invited to apply for funds to carry out control programmes, and 22 Boards received allocations from the fund during the year.

Animal Health

Responsibility for ensuring the health and related productivity of the important species of livestock, and for controlling scheduled diseases, rests with the Division of Animal Health.

Disease prevention and control involved not only the resources of the Department of Agriculture but coordination with other State departments and private bodies.

The principal Acts administered by the Division are: the *Stock Diseases Act*, 1923; *Stock Foods and Medicines Act*, 1940; *Stock (Chemical Residues) Act*, 1978; *Meat Industry Act*, 1978; *Cattle Compensation Act*, 1951; *Swine Compensation Act*, 1928; *Poultry Processing Act*, 1969; and the *Veterinary Surgeons Act*, 1923.

The Division administered the section of the Quarantine Act relating to the importing and exporting of animals and the importing of animal products on behalf of the Commonwealth of Australia. For details of this work see Appendix II.

The Division also supervised the 38 veterinary inspectors employed by Pastures Protection Boards throughout the State.

Animal Health Diagnostic Service

The Regional Veterinary Laboratory, Orange, completed its first full year of operation. Its services were extensively used, with specimens being received from all parts of the central west, west and far west of the State.

The number of specimen consignments to the Department's veterinary laboratories was up slightly on previous years, again with most submissions coming from private veterinary practitioners. This reflects good cooperation between the private and public sectors in servicing the livestock industries.

Details of the submissions are given in Appendix 1.

Exotic Disease Control

Exotic diseases posed a continuing threat to the Australian economy and to the health of animals and plants. An Assistant Director (Animal Disease Control) was seconded for two months to the Australian Bureau of Animal Health to assist in the development of the national information systems to be used in an animal disease emergency.

The departmental exotic disease task force was regionalised during the year. An inter-regional liaison committee was established to guide the development of regional task forces within the State's overall exotic disease preparedness programme.

Epidemiology and Animal Health

Regional epidemiology committees examined animal disease data and the availability of local production data to define district problems and rank them in order of importance. The epidemiological approach to disease control aids the definition of problems and the assessment of viable control options.

An animal disease monitoring system was developed to integrate information from laboratory, abattoir and field services. Considerable progress was made in the development of the reporting system.

Marketing and Economic Services

The Division of Marketing and Economic Services provided economic information and analysis relating to the State's agricultural sector.

The Division provided advice on commodity prospects, policy issues, marketing schemes, agricultural economics and farm management, and undertook research into production, marketing and handling of agricultural products.

The Marketing Advisory Unit and the Primary Products Promotions Unit were added to the Division's range of functions during the year.

Marketing Services

Commodity Markets: Regional officers' needs for up-to-date market outlook information for cereals and oilseeds are now being met by the new Cereals and Oilseeds Digest. Prepared by the Division of Marketing and Economic Services for internal distribution, the Digest is normally distributed twice monthly to all district agronomists and other regional officers.

A number of divisional and other departmental officers participated at various sessions of the Regional Outlook Conference conducted by the Bureau of Agricultural Economics at Orange in March following the National Agricultural Outlook Conference in February.

Marketing Reporting Service: Market reports issued to the media and others on each trading day covered fruit, vegetables and cut flowers sold at Flemington; and livestock sold at Homebush, Wagga Wagga, Dubbo, Tamworth, Gunnedah, Armidale, Casino and Goulburn. Market reporting at Moree, which ceased during 1980-81, has not been recommenced because of low yardings due to the drought.



Market reporting officers compile reports of yardings and prices paid at eight major auction centres in New South Wales.

Market reporting officers now report a "futures type lamb" in addition to the "futures type trade steer" and "futures type export steer".

The Marketing Reporting Service installed recorded message facilities at Head Office and at all the centres where market reporting is done. The livestock marketing reporting service recorded message lines are jointly funded with the Meat Industry Authority at the main regional livestock selling centres. The Sydney Farm Produce Market Authority funds the line at Flemington markets for fruit, vegetables and cut flowers.

Seasonal Conditions Reporting Service: Publication of the monthly survey of New South Wales Pastoral and Seasonal Conditions ceased in January 1981. However, publication of the Monthly Report on Production Trends covering the more important crops grown in New South Wales, plus dairying products, wool sales, stock slaughterings and meat production, continued. Production Trends does contain some information on pastoral and seasonal conditions as well as information on production trends in the major rural industries.

Marketing Advisory Services: The Marketing Advisory Unit which was transferred during the year from the Division of Research and Advisory Services continued to provide marketing advice to the beef, banana, table grape, peach and apple industries.

A banana taste testing survey was conducted at the 1982 Royal Easter Show and a report was presented to the directors and general management of the New South Wales Banana Growers Federation.

Economic Services

The Division conducted a dairy farm survey as part of its statutory obligations under the *Dairy Industry Marketing Authority Act*.

The Division has been monitoring the progress of negotiations for a Closer Economic Relations (CER) agreement with New Zealand which is designed to replace the New Zealand-Australia Free Trade Agreement (NAFTA). The Department undertook a number of regional impact studies on agricultural commodities likely to be affected by CER. The Division has also provided comments to the Commonwealth on various aspects of the proposal for a CER agreement.

As a result of the report on the egg industry some studies were carried out into new and alternative marketing arrangements for the egg industry.

Production and economic research: The Division was also involved in major work on the implications of: the Campbell Report on Finance to the rural sector; foreign investment in rural land; economics of water usage; salinity; pests of stored grain; livestock and meat marketing; the structure of pig meat marketing; the structure of the seed industry; share farming agreements; and land use matters and honey industry stabilization.

Submissions to inquiries and government business:

Evidence was presented to a number of IAC inquiries during the year including inquiries on short term and long term assistance to the canning fruit industry, and the tobacco industry. The Division also prepared and collated the departmental submission to the Balderstone committee of inquiry into agricultural policy.

Farm business management: The "Apple" micro computers now located at regional headquarters were regularly used by economists to draw up farm budgets for a wide range of agricultural enterprises. Most regions have now produced farm budget booklets in a format similar to that used in the COMPLAN handbooks. The use of computer facilities has eliminated much of the time consuming hand work required to update budgets.

Regional economists continued to provide a range of farm financial advice to producers through written material, personal contact, and through fellow district officers to whom they provide a back-up service in farm management and economic advice.

Legislative Services

The Division of Marketing and Economic Services was involved during the year in a major revision of the *Marketing of Primary Products Act* which controls the establishment and operation of State marketing boards.

The Lemon Marketing Board was dissolved after a poll held in March 1982. Action was taken to appoint a liquidator to wind up the affairs of this Board.

The Yellow Maize Marketing Board voluntarily suspended operations as of 30th September 1981.

Triennial elections for producer representatives to the following Boards were held during 1981-82: Murray Valley Citrus Marketing Board; and the Oilseeds Marketing Board. These elections were conducted by the State Electoral Office after preparatory work by the Division of Marketing and Economic Services. The Division was also involved in preparatory work for the Meat Industry Authority election and for the election of both producer and union representatives to the Grain Handling Authority.

Research Services

The research services of the Department of Agriculture provide information and services to assist the Department's advisory, educational and regulatory functions and to help farmers solve production problems. The continuing aims are: to help farmers increase productivity and thus increase their capacity to adjust to economic changes; and to contribute to the pool of knowledge from which future advances may be made.

The research services also provide diagnostic and analytical information direct to farmers and to departmental research, advisory and regulatory staff. For example, the Biology Branch of the Biological and Chemical Research Institute, Rydalmere, handled 2745 plant specimens for disease and parasitic nematodes identification; and, 32 655 samples of plants, soil, water, fertilizer, stock feed, pesticides, essential oils and cereals were subjected to 232 633 tests by the Chemistry Branch.

A wide range of disciplines is involved in the research services provided by the Department. The following establishments where research is carried out are important parts of the Department's present regional administrative structure.

- Agricultural Research Centre, Wollongbar
- Agricultural Research & Advisory Station, Grafton
- Tropical Fruit Research Station, Alstonville
- Agricultural Research Centre, Tamworth
- Agricultural Research Station, Narrabri
- Poultry Research & Advisory Station, Seven Hills
- Agricultural Research & Advisory Station, Glen Innes
- Horticultural Research Station, Gosford
- Horticultural Post Harvest Laboratory, Gosford
- Agricultural Research Centre, Trangie
- Agricultural Research & Veterinary Centre, Orange
- Agricultural Research & Advisory Station, Condobolin
- Agricultural Research Station, Bathurst
- Agricultural Research Station, Cowra
- Agricultural Research Centre, Yanco
- Horticultural Research & Advisory Station, Dareton

- Viticultural Research Station, Griffith
- Agricultural Research Institute, Wagga Wagga
- Agricultural Research Station, Leeton
- Agricultural Research & Advisory Station, Temora

Research services are also provided from the Veterinary Research Station and the Agricultural Engineering Centre at Glenfield; the Biological and Chemical Research Institute, Rydalmere; the Horticultural Research Unit, Richmond; the Dairy Research Centre, Richmond; the Artificial Stock Breeding Centre at Berry; and the Regional Veterinary Laboratories at Armidale, Wollongbar, Wagga and Orange.

The main financial support for research came from Consolidated Revenue, and about eight per cent from rural industry research grants, as detailed below.

	1980-81 \$	1981-82 \$
Australian Meat Research Committee	594 826	490 278
Wool Research Trust Fund	284 945	270 643
Wheat Industry Research Committee of N.S.W.	513 552	406 190
Wheat Industry Research Council	257 975	319 594
Australian Pig Industry Research Committee	47 378	48 833
Barley Industry Research Committee of N.S.W.	—	20 000*
Barley Industry Research Council	—	12 800
Australian Dairy Research Committee	40 410	9 310
Poultry Research Advisory Committee	28 527	10 915
Australian Chicken Meat Research Committee	21 610	41 100
Dried Fruits Research Committee	15 700	16 800
Oilseeds Research Committee	87 176	43 024
Honey Research Committee	2 400	1 800
Central Tobacco Advisory Committee	73 219	59 250
	\$1 967 718	\$1 750 537

* Estimate

About \$500 000 was available in 1981-82 from miscellaneous sources. These included: the Australian Cotton Growers Research Association; the Mushroom Growers Association; the Central Coast Citrus Growers Association; the Rural Credits Development Fund; the Commonwealth Special Research Grants; the New South Wales rice industry; and the Swine Compensation Fund.

Research Results

The major results from research activities in 1981-82 have been reported under the various commodity headings in this report. However, a number of major activities and findings of agricultural significance are not included under particular commodities.

Some research and new developments not covered under the commodity headings involve the professional staff of the Biological and Chemical Research Institute, Rydalmere. Their responsibilities include research, liaison, service to research and

industries, and regulatory duties relating to various Acts. The following activities show the scope of the work done by the Biological and Chemical Research Institute.

Eucalypt dieback research: Many of the insects associated with eucalypt dieback in the northern tablelands have been isolated and identified. Progressive dieback is now limited to isolated areas around the periphery of the tablelands. The decline in dieback and the abundant regeneration of affected eucalypts is due to several factors. Many of the leaf eating insects, such as scarabs and chrysomelids, live as larvae in the soil and the prolonged drought has killed many of the larvae, or prevented the adults from emerging from the soil. This has drastically reduced the numbers of adults feeding on eucalypt foliage. There has also been an increased incidence of parasitism of leaf eating insects. Regrowth has also been assisted by the reduction in grazing pressure.



An area severely affected by eucalypt dieback on the northern tablelands of New South Wales.

Magnesium deficiency: Chemists used leaf and soil analyses to identify a serious magnesium deficiency occurring in acid soils which caused stunting and reduced wheat yields in the higher rainfall areas of the southern wheat-belt. Lime and magnesium treatments are currently being tested in an attempt to lessen the problem.

Crop damage from possible herbicide contamination: Pesticide chemists at Rydalmere have participated in a number of investigations into crop losses which might involve chemical spray contamination. Serious losses to two wheat crops and one lupin seed crop could have been a consequence of herbicide contamination.

Biometrical Branch: Information retrieval systems were introduced for manipulation of data for the Management Information System; for yield and quality parameters of wheat variety trials; and for a number of animal health reporting projects. The systems are based on relational database structures (cross-reference systems) and considerable experience was gained in their use. They allow projects with overlapping areas of interest to be integrated: for example, a directory of Departmental offices and Pastures Protection Board and abattoir addresses are used in both the Management Information System and in disease reporting; and the roll of names and addresses of registered veterinary surgeons is used in information retrieval of specimens submitted for laboratory examination.

Advisory Services

The number of front-line advisory officers was increased quite dramatically during 1981-82. Additional district agronomists were appointed to Hillston, Narrandera, Temora, Crookwell, Forbes, Bathurst North, Gloucester, Walcha, Kempsey, Manilla, Wellington, Casino and Jerilderie. District horticulturists were appointed to Mullumbimby, Dareton, Windsor and Rydalmere. New livestock officers (sheep & wool) were appointed at Mudgee, Coonamble, Hillston, Armidale and West Wyalong. A livestock officer (beef cattle & horses) was appointed to Tumut. A livestock officer (pigs) was appointed to Cowra and a piggery position at Windsor was transferred to Seven Hills and broadened to include poultry.

Regional Advisory Service Activities 1981-82

Articles for Agricultural Gazette	27
Agfacts	147
Articles for Dairy Topics	4
Articles for statewide journals and magazines	113
Original press articles	3617
Original media broadcasts	2569
Original TV programmes	363
Contributions to newsletters	1205
Contributions to research/advisory conferences	188
Joint papers with research workers	100
Regional or local bulletins	725

Veterinary officers and veterinary inspectors spent considerable time on advisory work. The following is a summary of their advisory activities:

1981-82

Farm visits	11 861
Press releases	525
Contributions to newsletters	101
Radio broadcasts	92
TV programmes	18
Meetings addressed	393
Field day contributions	61

Brucellosis eradication campaign staff made a further 27 917 property visits.



Farmers inspecting an experimental area of grain sorghum established using minimum tillage techniques.

Field Day Displays

Small field days have been a major point of contact between the Department and producers for many years. Each year advisory and research officers speak at hundreds of field days organized by the Department as well as to a wide variety of more informal groups.

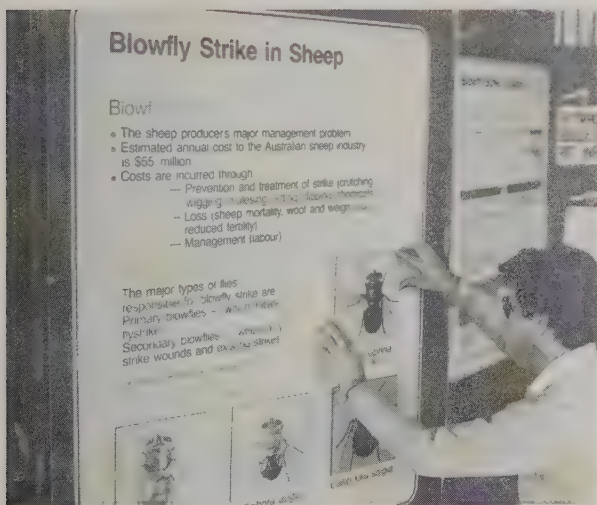
The Department has also contributed to the large machinery-oriented field days that have become increasingly important since the early 1970s.

To help upgrade the quality and quantity of displays at field days, the Department appointed a display designer late in 1981, the benefits of which soon became apparent.

The aims of most displays are: to enable even the casual viewer to see at a glance some of the main areas of the Department's work; to give the more interested person a few further details and the main conclusions or recommendations; and to provide a background to enable our advisory officers to help the serious inquirer to reach a decision.

The first major effort was to display some of the Department's work at 'Agsearch 81', the Open Days at Trangie Agricultural Research Centre. About 50 display boards were prepared showing how the application of the results of the Department's research can be used to increase production, to reduce losses, and to farm more efficiently.

At the RAS Easter Show, the Department presented a display and advisory services on the "Fresh is Best" theme in the Manufacturers Pavilion and displays on carcass classification and Graham Park Breeding Services were mounted in the Cattle area.



Departmental graphic design artist Phil Eldridge attaches the final artwork to one of the many displays at Agsearch 81 at Trangie.

Gardens Advisory Service

The Gardens Advisory Service answered 29 021 enquiries compared with 31 367 last year, a reduction due primarily to staffing restrictions. The officers addressed six garden clubs and horticultural societies, and assisted with the Mudgee Small Farms Field Days, Gunnedah Agquip, the St. Ives Garden Spectacular, Carnivale and a display at the Government Information Centre. The section was responsible for 25 Agfacts on fruits in the garden and one Agfact "Weed Control in the Garden". One officer exchanged duties with a counterpart from the Victorian Department of Agriculture for one month.

Technical Services

Charge Introduced for Analysis of Mushroom Composts

The Department introduced a charge in May 1982 for chemical analysis of mushroom compost and compost constituents. The samples are being analysed for pH, electrical conductivity, moisture content and nitrogen content for a charge of \$21.50. Five hundred mushroom compost samples were analysed during the year by the Biological and Chemical Research Institute.

Animal Health Diagnostic Service

The regional veterinary laboratories at Armidale, Glenfield, Orange, Wagga and Wollongbar, and the central laboratory at Glenfield, provided the diagnostic services for Government veterinarians and private practitioners. Some 15 300 specimen consignments were received, plus a further 2.6 million serum samples for tests under the Bovine Brucellosis Eradication Campaign. Details are tabled in Appendix I.

A total of 1450 escort bees were dissected to detect internal parasitic mites which cause Isle of Wight disease: none were detected.

Plant Health Diagnostic Services

Entomological inquiries totalled 6530, including 3225 specimens for identification. During the year 2304 specimens were added to the entomological collection at the Biological and Chemical Research Institute.

Agricultural Engineering

The Agricultural Engineering Branch provides engineering services to the Department, coordinates statewide mechanisation advisory programmes and conducts research. Services to the Department relate to fixed plant, equipment, ancillary services and corporate energy management. Most current research projects concern the mechanisation needs of the cropping industries and engineering work on rural energy.

Agricultural Mechanisation Advisory Service

The senior officer (now stationed at Glenfield) and the eight country based officers advised farmers on a wide range of farm mechanisation topics during the year. Innovative developmental work included: electric fence construction; a blackberry spraying gun; pesticide application technology; tractor safety frames; press wheels for cereal sowing in light soils; reduction of diesel fuel waxing; methane gas generation from livestock wastes; tractor selection and implement matching; and minimum cultivation techniques for crop production. Comprehensive mechanisation exhibits were mounted at each of the major machinery field days, where officers received many inquiries.

Engineering Services

The section devised and implemented an energy management programme which significantly reduced departmental energy consumption.

Major fixed plant installation projects finished this year include the installation of heating, cooling and control systems in a glasshouse at the Agricultural Research Institute, Wagga for research into leaf blotch disease of wheat, and two controlled environment growth rooms with microprocessor control at the Orange Agricultural Research and Veterinary Centre.

Innovations Developed and Completed:

New model conservation tillage seeder
Implement stump-jump/mechanism analysis test stand
Cattle frame-score measuring device "Frame-Up"
Cashmere goat fibre combing machine
Tractor ballast and weight transfer display stand
Spray patternator
Vegetable oil fuel esterification plant
Diesel engine test stand instrumentation
Farm engine modification for operation on straight ethanol fuels
Plastic duct design programme

Research

The major activity at the Agricultural Engineering Centre, Glenfield again centred around the experimental fuel ethanol plant, and the use of vegetable oils as diesel fuels. The farm fuel ethanol plant was formally commissioned by the Minister on 2nd December 1981, and work with this plant demonstrated the potential of alcohol fuels but indicated that on-farm production of ethanol is complex and expensive. Research is continuing to investigate the injector fouling propensity of vegetable oils when used as straight fuel in diesel engines.

Development of machinery for conservation farming intensified during 1981-82 and is becoming one of the most important aspects of the research work at the Agricultural Engineering Centre. Initially, "no-till" seeding machinery is being developed for the northern wheat belt and for the north coast. Evaluations of soil engaging devices and stump-jumping mechanisms are prime areas of investigation.

Engineering researchers at the Agricultural Research and Advisory Station, Condobolin, continued to investigate the economic efficiency and energy requirements of tillage machinery for wheat production. The power requirements of a one-way disc plough, wheeled offset disc harrow, blade plough, scarifier and chisel plough were measured over a wide range of conditions. Other work investigated reducing scarifier draught by adding gypsum to the soil and the effect of tine geometry on implement draught.

AGRICULTURAL EDUCATION

The Department continued to provide an agricultural education service through courses offered by the C.B. Alexander Agricultural College at Paterson; the Murrumbidgee College of Agriculture at Yanco; and the Correspondence Course Production Unit now

located at the C.B. Alexander Agricultural College. Orange Agricultural College is administered by the Department through the Regional Director of Agriculture at Orange. However, it is funded by the Higher Education Board and provides an annual report on its activities to that organisation.

The courses offered by the colleges and student statistics are listed in Appendix VI.

Murrumbidgee College

A number of other short courses, conferences, seminars and meetings were conducted to cater for the educational needs of primary producers. The Murrumbidgee College of Agriculture conducted courses on land forming, welding, rice growing and pig production. The Rural Youth Organisation, the Agricultural Bureau and the Australian National University held conferences at the college.

At the Murrumbidgee College of Agriculture, significant changes in staffing, course operation and administrative structure were made during 1981-82. The changes were announced by the Director-General after a departmental review. They will enable the college to respond more effectively to immediate and projected community needs for preparatory and continuing education in agriculture.

Mr. W.W. Long, formerly Deputy Principal of the C.B. Alexander Agricultural College, was appointed Principal of the Murrumbidgee College of Agriculture on 17th May 1982.

Courses at Murrumbidgee College will in future focus on dryland and irrigated cropping and their related livestock activities, and on rangeland management.

Two levels of courses will be continued:

- certificate level courses training people in the skills, knowledge and attitudes necessary to become competent farm operators and to introduce them to farm management; and
- advanced certificate level courses will stress the theory and practice of applied farm management in the industries of the student's choice.

The Murrumbidgee College of Agriculture will increase emphasis on practical experience within each of the college's courses. A new development is the use of commercial farms for skills training in dryland farming operations and an area of 800 hectares of wheat was cultivated and sown by Level 1 and Level 2 students in the 1982 season. A revised student evaluation system, based on continuing assessment was introduced for both Level 1 and Level 2 Courses. All courses are currently being revised by departmental staff and industry representatives.

During 1981-82 the administrative and management functions of the college and the research activities of the Department of Agriculture conducted at the Yanco Agricultural Research Centre were integrated. The combined unit is operated by a management committee comprising the Regional Director of Research (chairman), the Principal, the Manager and the Administrative Officer. The integration has increased efficiency and effectiveness.



C.B. Alexander Agricultural College, 'Tocal', Paterson.

C.B. Alexander College

The C.B. Alexander College appointed its first lecturer in horticulture in February 1982, reflecting a demand from both students and employers. Courses in horticulture were expanded to give all certificate students an introduction to general horticulture, and to allow advanced certificate students to study their particular horticultural areas of interest.

The college and the advisory services of the Department in the New England, Hunter and Metropolitan Region aims to increase cooperation between College and regional staff by providing an expanded range of continuing education opportunities for farmers and agribusiness personnel according to their specific and changing needs.

Dr. J.P. Drinan was appointed Principal of the College on 31st August 1982 following the retirement of Mr. G. McFarlane who had most successfully guided the development of the College since it was first administered by the Department.

It is with sincere regret that we record the death on 1st May 1982, of the founder of the C.B. Alexander College, Mr. Edward Alan Hunt M.B.E.

Correspondence Courses Production Unit

The Department continued to offer two home study courses in Farm Management and Farm Office Management to primary producers throughout New South Wales. The two courses are offered by

correspondence and are supplemented by regular face-to-face tutorial support services supplied by departmental personnel at the regional and district level. Residential schools for Farm Management Course clients were held at the University of New England and the Sydney University farm at Camden. Seminars and weekend schools were also conducted for both courses at the C.B. Alexander Agricultural College and the Murrumbidgee College of Agriculture.

Teaching materials were produced and distributed from the Correspondence Courses Production Unit which was established at the C.B. Alexander Agricultural College in April 1981. Five regional group advisory officers serviced the courses at the regional level and coordinated the inputs of departmental research, regulatory and advisory officers.

A "farm skills" series of special purpose booklets for home-study purposes was introduced in 1982. These publications are prepared by advisory officers and college lecturers in association with the Correspondence Courses Production Unit. They are distributed to departmental clients not enrolled in either of the existing courses but who wish to develop their knowledge and skills in specific areas of farm planning, business analysis and agricultural technology.

PUBLICATIONS

The Department has produced publications on technical aspects of farming in New South Wales since 1891 and now has more than 1000 current titles available for distribution. A major review of the Department's publications and information services was undertaken during the year to determine the need for rationalisation and to effect economies.

Major changes to come from the review were the decisions to terminate the publication of the Department's journal, *The Agricultural Gazette* of New South Wales and the magazines *Macquarie Rural Magazine*, *Landscene* and *Rural Notes*. The staff and financial resources committed to these publications will be directed to developing and expanding the *Agfact* series as the major outlet for advisory information.

The *Agfact* series consists of subject specific bulletins ranging in size from single sheets up to 36 pages or more which are colour and numerically coded under the *Agdex* system. Any individual with a single or multi strand interest in agriculture can obtain and file, either in a specially produced binder or in a cabinet suspension system, a ready reference series designed to outline specific production topics and present recommended managerial practices.

To ensure that the Department retains the ability to present an overview on agricultural matters, regional publicity officers located in eight major country centres placed new emphasis on utilising television, radio and newspaper outlets. Further, topical material previously published in departmental magazines is now being issued through one or more of the many regional newsletters which are assuming increasing importance.

LIBRARY SERVICES

The Department's technical library service comprises collections under the care of librarians at the Head Office library, the Biological and Chemical Research Institute, the Glenfield Veterinary Research Station, the Wagga Research Institute, the three Agricultural Colleges and the research centres at Wollongbar, Tamworth, Orange, Yanco and Trangie. Other material is stored at regional advisory headquarters, district offices, and research stations throughout the State.

Full-time regional librarians have been appointed. Their prime duty is to match the needs of each professional officer with the resources available.

Membership of the CLANN network, a cataloguing cooperative of Colleges of Advanced Education (CAE) libraries, allows access to the combined holdings of most CAEs in New South Wales, and provides a union catalogue of microfiche of the holdings of the Department at every location.

The organisation of *Globe Pass*, the periodical management programme of *Globe Subscription Agency*, allows instant generation of current information on the holdings and circulation of periodicals at every location.

ABOA (Australian Bibliography of Agriculture), the cooperative data base established by the State Departments of Agriculture and CSIRO allows control of Australian agricultural publications. The data base is available on Ausinet (Australian Information Network) and will allow remote locations access to a list of the national publications output in agriculture and indicates where copies of that output may be obtained.

During the year this and other Departments' library services were examined by the Public Service Board's Audit and Investigation Division. Subsequently, a substantial and detailed position paper was received and action was taken to implement the Guidelines to Management of Government Libraries.

AGRICULTURAL BUREAU

The Agricultural Bureau consists of 75 branches, with 3500 members across the State. There has been a long, mutually beneficial association between the Bureau and the Department.

The primary objective of the Bureau is to promote continuing education for rural producers. The establishment of the Group Activities Unit and the greater involvement of all advisory officers in group work, allowed the Department to give better support to the Bureau in achieving its objective.

The unit will continue to provide executive assistance to the Agricultural Bureau State Executive Council.

An important initiative was to hold an Executive Council meeting at Cowra and hold discussions with senior regional staff. As a result, guidelines were established for closer working links between the Bureau and the Department in each region.

Major statewide activities included:

- the Beef Cattle Breeders Competition;
- the co-sponsorship of Dr. Hiram Drache, a leading visiting American agricultural historian who delivered a series of talks around New South Wales;
- The Animal Welfare Advisory Council's executive officer conducted a series of seminars to promote understanding of the animal liberation legislation; and
- a submission to the Education Commission of New South Wales on education for rural areas.

RURAL YOUTH

The Rural Youth Organisation promotes training in farming skills, citizenship and self development for members.

Numbers of junior Rural Youth members increased marginally during the year whilst numbers in the senior section fell slightly. The overall membership remains fairly static at 4500 members.

The State Rural Youth Council began a programme to completely restructure the organisation, to review its objectives and activities, and attempt to promote more self help in administration and organisation.

This will allow the Department to provide more agricultural assistance as is the case with the Agricultural Bureau.

Executive assistance to the State Council will still be provided by the Group Activities Unit once the new organisation is adopted.

The major activities for the year included:

- Production of a promotional film to explain the objectives of Rural Youth.
- The adoption of a "care for our country" theme with the emphasis this year on soil conservation. A programme of seminars, and promotional material, has been organised
- Various agricultural training activities across the State.
- A submission to the Education Commission of New South Wales.

PASTURES PROTECTION BOARDS

Pastures Protection Board Symposia

During August 1981, four, two-day symposia were held for Pastures Protection Board directors at Goulburn, Narrandera, Dubbo and Armidale.

A wide range of topics was covered, ranging from legal matters to general administration. One of the main aims was to encourage the "management by objectives" concept. The programme was jointly organized by the Department of Agriculture and the Council of Advice (the executive body of the Boards). Following the symposia four Boards (Cooma, Gundagai, Moss Vale and Armidale) invited officers from the Department to provide more information on planning, and special two-day schools were conducted for these boards.

Pastures Protection Board Boundaries

During the year Pastures Protection Boards discussed variations to their district boundaries which have had no significant changes for several decades. Changing circumstances have indicated that boundary revision could result in more efficient administration.

The discussions on boundary changes examined three aspects:

- possible amalgamation of certain Boards;
- conformity of the Boards' district boundaries to those of the regional boundaries of the Department of Agriculture;
- other boundary changes of a miscellaneous nature.

The outcome of the Boards' discussions on boundary changes was referred to the Council of Advice which formulated a comprehensive report.

TRAINING AND HUMAN RESOURCE DEVELOPMENT

Despite the pressure of immediate problems from the continuing drought in many districts, the Department continued to update district officers' technical skills through study tours, seminars, conferences, schools and workshops.

Technical training has been particularly directed towards the many advisory officers newly appointed to district positions during the expansion of the Department's advisory services. They have had to quickly become acquainted with the enterprises in their districts and, in some cases, have had the added responsibility of opening a new district office.

The Department completed a series of training exercises in the use of the Agdex information storage and retrieval system for advisory officers. Twenty-five separate demonstrations of the Agdex system were held in major centres throughout the State and in Head Office. Officers using the system report on its usefulness in bringing order to the vast amount of technical information with which they need to be familiar. The Division of Research and Advisory Services and regional headquarters sold more than 300 copies of the Agdex Code Book in 1981-82, mainly to high schools which teach agriculture.

In February 1982, the eighth communications skills workshop was conducted by the Division of Research and Advisory Services for 23 newly appointed advisory officers. The series is continuing. Other training and development activities which took place in 1981-82 are listed below

- Advisory Officers School, Rydalmere
- Port Inspectors training course in Public Relations and Communication
- Orientation Programme for Regional Administrative Officers and Regional Administrative Assistants
- Conference for Regional Administrative Officers, Regional Administrative Assistants and Divisional Administrative Officers
- Orientation Course at Head Office
- Career Development Workshop at Yanco, Rydalmere, Dubbo and Orange
- Job Seeking Skills Workshop
- Selection Techniques Workshops for Senior Staff
- Selection Techniques Workshop at Wagga
- Efficiency and Management Audit Seminar
- Workshop on Instructional Techniques for Plant Quarantine Officers

OVERSEAS PROJECTS

The Department is actively supporting programmes of the Australian Development Assistance Bureau (ADAB), as their managing agent for overseas projects, and through the provision of technical advisers to developing countries.

On behalf of ADAB, the Department is managing Phase II of a land development project in Sri Lanka which is estimated to cost \$3 million over four years. Phase I of this project finished in June 1982, after an expenditure of \$4.2 million.

The Department's four and a half year involvement in a cattle development project in Bangladesh also finished in 1982 after an expenditure of \$2.9 million. A two-year dairy development project in the Republic of Seychelles was completed in September 1981 at a cost of \$185 600.

Senior departmental specialists participated as advisers and consultants on short assignments to Sri Lanka, China, Bangladesh, Bhutan, Pakistan, Indonesia and the Philippines. Twenty-one officers spent a total of 54 weeks on overseas assignments.

The Department continued to support the development of a model beef cattle farm on Hainan Island, China, established in 1981. The two departmental officers located with the project as technical advisers have achieved considerable success in early efforts to establish tropical pastures and to introduce adapted techniques for land and cattle management. They are supported by visits from senior departmental specialists.

The Assistant Director of Entomology and entomologists at the French Government research organization (ORSTOM) in New Caledonia established a laboratory pesticide testing programme. The project has already yielded valuable results on spider mites which are major pests of many horticultural crops and cotton in New South Wales.

REGULATORY SERVICES

Regulatory Function of the Department

Implementation and enforcement of statutory provisions is the function of Government and the New South Wales Department of Agriculture has a basic role in:

- the control or eradication of plant and animal diseases and pests;
- ensuring high quality in agricultural products, especially foodstuffs, and aids such as stock medicines and pesticides;
- maintaining standards of conduct in areas of activity associated with agriculture; and
- the prevention of entry of exotic plants, animal diseases and pests.

These powers and responsibilities are vested in the Department through various Acts and their Regulations.

Some officers combine regulatory work with other activities and special groups are appointed for specific regulatory functions: for example, meat inspection, cattle tick control, brucellosis eradication, plant disease regulations, quarantine inspection for imported produce and quality inspections for exports.

Regulatory Staff

The following table summarizes departmental staff who were inspectors under an Act and who were directly involved in regulatory work. Many of the professional staff had a dual advisory/regulatory function. Regulatory work was a major activity in three divisions as shown below.

Departmental regulatory staff as at 30th June 1982

	Central Admin.	Animal Health	Animal Prod.	Plant Inds.	Biological & Chemical Research Inst.	Total
Professional	5	55	62	4	1	127
Inspectors	14	1100	4	141	0	1259
Total	19	1155	66	145	1	1386

Regulatory Legislation

The Legal Branch in consultation with relevant Divisions, coordinates the preparation of legislation (including amendments to existing statutes), prepares informations for prosecution and appears on behalf of the Department in defended cases. Officers of the Legal Branch also conducted legal training seminars throughout the regions and at Head Office to assist staff in their regulatory activities under various Acts.

The following general activities were undertaken under State Acts: informations prepared: 108; proclamations: 26; notifications: 19; and gazettal of appointments, orders and miscellaneous notices: 42.

Main Acts Concerned with Regulatory Activities

The Department's regulatory activities are carried out under the following main Acts:

State Acts: *Agricultural Holdings Act*, 1941; *Agricultural Seeds Act*, 1921; *Apiaries Act*, 1916; *Banana Industry Act*, 1969; *Canned Fruit Marketing Act*, 1979; *Cattle Compensation Act*, 1951; *Dairy Industry Marketing Authority Act*, 1979; *Dried Fruit Act*, 1939; *Farm Produce Agents Act*, 1926; *Fertilizers Act*, 1934; *Horticultural Stock and Nurseries Act*, 1969; *Marketing of Primary Products Act*, 1927; *Meat Industry Act*, 1978; *Noxious Insects Act*, 1934; *Pastures Protection Act*, 1934; *Pesticides Act*, 1978; *Plant Diseases Act*, 1924; *Potato Growers Licensing Act*, 1940; *Poultry Processing Act*, 1969; *Registration of Stock Brands Act*, 1921; *Stock (Artificial Insemination) Act*, 1948; *Stock (Chemical Residues) Act*, 1975; *Stock Diseases Act*, 1923; *Stock Food and Medicines Act*, 1940; *Swine Branding Act*, 1940; *Swine Compensation Act*, 1928; *Veterinary Surgeons Act*, 1923; *Wine Grape Processing Industry Act* 1979.

Commonwealth Acts: *Quarantine Act*, 1908-73; *Commerce (Trade Descriptions) Act*, 1905.



Legal officers hold training sessions in regions and at Head Office for officers who need to appear in court on behalf of the Department. (photo courtesy of the 'Northern Star', Lismore.)

Statistical information relating to the major Acts is in Appendix II. Highlights of regulatory activities follow:

Summary of Legislative Activities

The following legislation was assented to:

Acts

Dried Fruits (Amendment) Act, 1982
Meat Industry (Amendment) Act, 1982
Seeds Act, 1982
Stock Diseases (Amendment) Act, 1982

Regulations

Agricultural Seeds Act, 1921
Apiaries Act, 1916
Banana Industry Act, 1969
Cattle Compensation Act, 1951
Chicken Meat Industry Act, 1977
Dried Fruits Act, 1939
Marketing of Primary Products Act, 1927
Meat Industry Act, 1978
Noxious Insects Act, 1934
Pastures Protection Act, 1934
Plant Diseases Act, 1924
Potato Growers Licensing Act, 1940
Poultry Processing Act, 1969
Regulation of Stock Brands Act, 1921
Stock Diseases Act, 1923
Stock Diseases (Swine Branding) Amendment Act, 1981
Stock Foods and Medicines Act, 1940
Swine Compensation Act, 1928
Veterinary Surgeons Act, 1923

No. of amendments

1
1
1
1
1
2
4
4
1
2
1
1
1
2
1
4
1
2
1
1
1
2

NEW REGULATORY ACTIVITIES

Plant Diseases Act, 1924

Powers under the *Plant Diseases Act* were used throughout the State to prevent the spread of major pests and diseases. In addition to the implementation of fruit fly quarantine in the Murrumbidgee Irrigation Area (MIA) and Murray River area, a number of other special campaigns were undertaken.

Following detection of warehouse beetle outside the MIA, mainly at Gunnedah and nearby towns, a 12 month intensive programme to detect and treat infestations of the pest in New South Wales was started in December. The programme was jointly funded by the Commonwealth and States. Two teams of inspectors carried out intensive systematic inspections in the MIA and at Gunnedah, and surveys in other parts of the State. They sprayed infestations not sufficiently serious for fumigation treatments. A number of infestations were found at Wagga, Cowra and Dubbo.

Costs of the Banana Bunchy Top Disease Control Scheme, which is cooperatively implemented with industry using the powers of the Act, continued to rise. Pressure mounted to reduce the level of industry involvement and to increase the responsibility of individual growers to detect disease within their own plantations.

Pesticides Act, 1978

The Pesticide Registration Section is responsible for the administration of the *Pesticides Act*, 1978; the *Pest Destroyers Act*, 1945 (now repealed); and allied matters.

The *Pest Destroyers Act*, 1945 was repealed on 30 October 1981; and all Sections of the *Pesticides Act*, 1978, not previously Gazetted, commenced on that date.

The new Act controls the sale, supply, possession and use of pesticides; and provides for the registration of pesticides, the approval of containers (for registered pesticides), and the registration of labels.

The Pesticide Registration Section processed applications for registration of new pesticide products, approval of containers, registration of labels, and issue of permits during the year.

Officers of the Section gave a number of lectures on the Pesticides Act to various farming, horticultural and pest control operator groups during the year.

Quarantine Act (administered on behalf of the Commonwealth)

A working party reviewed the operations of the animal and plant quarantine and inspection services, to ascertain whether integration of the two services would be beneficial.

Stock Foods and Medicines Act, 1940

Two new regulatory positions were established this year at the Seven Hills Poultry Research and Advisory Station for the analysis of stock medicines registered under the Act. The positions of Chemist and Technical Officer (Scientific) were filled in January and the chemical constituents of electrolyte solutions sold in New South Wales are being measured in the first survey. The initial regulatory activity resulted in better quality control by industry.

Fertilizers Act, 1934

A Technical Officer (Scientific) position was established this year to analyse fertilizers at the Biological and Chemical Research Institute. This will increase the Department's capacity to monitor the quality of fertilizers sold in the State.

The levels of molybdenum in molybdenised superphosphate sold in New South Wales were determined to check manufacturers' assurances of improved quality control following the finding last year of low levels of molybdenum in fertilizers in southern New South Wales. All the 37 samples collected by inspectors were found to be within legal tolerances.

Pastures Protection Act, 1934

The responsibility associated with the allotment of sheep brands and earmarks was transferred from the Registrar of Brands to the secretaries of the Pastures Protection Boards on 7th December 1981. This change will remove duplication and result in an improved service to producers.

On the same date the provision for branding and earmarking sheep was extended to include goats. This will provide goat owners with a system of legal identification of their stock.

ADMINISTRATION

The first full year of the Department's new regionalised restructure was a challenge to all sections. The Department operated under severe financial constraint, staff restrictions, curtailment of

a number of programmes and extensive internal restructuring. Projects were adopted in industrial relations, finance, equal employment opportunity, recruiting, counselling and computing.

Administration

The Staff Establishment and Review Committee (SERC) met on a number of occasions during the year. Budget Priorities Committee and Senior Executive meetings were held. These three forums provided the basis for identifying and promulgating broad administrative directions for the Department.

A suspension of advertising, recruitment and employment of staff introduced in May 1981, was lifted on 15th July 1981. The suspension had an adverse effect on the Department's ability to fully maintain its services although a number of exemptions from the "freeze" were given. Following the ending of the freeze, a vigorous recruitment campaign was undertaken.

A second staff suspension in February 1982, placed increasing strains on the Department's resources. A number of exemptions were granted mainly for industry and Commonwealth funded positions. The suspension was still in force at 30th June 1982.

In conjunction with the second suspension, a Government Functions Task Force was established to review all programmes of departments and statutory authorities. The Department submitted a comprehensive submission to the Task Force.

On 7th June 1982 it was announced that as a result of reports by the special Task Force, the Poultry Research and Advisory Station at Seven Hills would be reduced in size by the phasing out of poultry production research, and the Agricultural Research Station at Leeton would be phased out.

In accordance with the Premier's direction, a Ministerial Energy Management Programme was prepared.

Finance

The Department's budget allocation for 1981-82 represented a real cut in funding. The budget was allocated for the first time on a fully regional basis. A new regional and divisional monthly financial reporting system was introduced to monitor expenditure.

Overall, the Department spent \$76 095 930 in 1981-82 against an original budget allocation of \$69 759 248 as supplemented to cover costs of award increases and other justified expenditures; thus achieving a balanced budget. Income to the Department from Fees for Services Rendered and for other miscellaneous receipts totalled \$14 334 123 against an original budget estimate of \$16 161 700.

Accounts Branch

Following a review of the Accounts Branch a revised organisation structure was submitted to the Public Service Board. The reorganisation will provide for a Budget Section which will enable the Department to better monitor its finances. The Budget Section will also analyse and develop alternative financial strategies for consideration by the Budget Priorities Committee.

A revised Chart of Accounts was designed to cover regional accounting requirements. A new monthly financial reporting system was also introduced to monitor expenditure. Country officers were delegated the responsibility for certifying the correctness of payments from country Advance Accounts under Section 41 of the Audit Act. This allows for more timely payments of accounts.

Management Audit and Analysis Branch

The Management Audit and Analysis Branch became operational on 1st July 1981. The Branch replaced the former Accounts Branch Inspection Section.

Since its inception, the Branch has concentrated mainly on financial, organisational and administrative audits throughout the Department. Analysts conducted 22 audits at regional establishments, seven in Head Office and two at the major metropolitan establishments. The Branch has replaced financial compliance auditing with systems-based auditing techniques. This change was reached following consultation with the Auditor-General and is in line with developments in overseas auditing practices. Audit reports also now contain recommendations on the corrective action for consideration by management. This approach has considerably assisted senior management with developing and implementing clear management controls.

A major task of the branch was a complete revision of the cost of services provided by the Department. The review was based on a cost recovery principle and it is expected that the Department's revenue will increase by \$1 million in the next financial year as a result of fee increases in line with this policy.

A detailed review of the use and costs of all vehicles used by the Department was undertaken. Information from this analysis is used in the Budget Estimates as a basis for calculating funds for official and private vehicle usage. Many recommendations have been implemented. Following the review, the Department's computerised motor vehicle listing was restructured to facilitate a more effective management of the total fleet.

A detailed review was also undertaken of the Herd Production Improvement Scheme, including the Artificial Stock Breeding Centre at Berry.

Management Services Branch

A computer technology policy working party was established with participation from the Administration Division. Following discussions with the Department of Services, A.D.P. Service Bureau and the Public Service Board, approval was obtained for a statewide communication network which is to be installed in conjunction with the A.D.P. Service Bureau and linked with the Burroughs B7700 computer. The Department took delivery of 15 computer terminals which are to be located in the country and Head Office and linked by high-speed lines to the B7700 computer. Seven of these terminals have word processing capabilities.

Staff of the branch assisted in the development of the statewide communications network, including the preparation of the appraisal and justification reports for the Public Service Board.

Within Head Office several Divisions were relocated while the Seed Testing Laboratory was transferred to the McKell Building. A kitchen/television studio was installed for use by the Primary Products Promotions Officer.

Safety

The Safety Officer visited most Departmental institutions during the year as part of the Department's accident prevention programme.

A further reduction in the number of days lost as a result of accidents at work was achieved. Not only does the programme attempt to reduce the number of days lost as a result of accidents at work, but attempts to reduce the pain and discomfort caused to those people injured at work. To achieve this, staff at departmental institutions were instructed on the correct use of fire extinguishers, pesticides, machinery safeguards and other safety equipment. The Safety Officer oversaw the Health Commission's Division of Occupational Health's extensive blood cholinesterase testing programme of those people who use pesticides. Action was taken to improve the use of safety equipment and protective clothing by field staff using pesticides.

The Safety Officer advised officers on the implications of the new rural safety regulations. These regulations relate to safety guards over moving

The Department actively promotes the use of safety equipment in agriculture. (Photo courtesy of The Land.)



machinery components and the fitting of a protective cab or frame on wheeled tractors in a certain weight range.

Regional Safety Committees were established to supervise the Department's accident prevention programme on a regional basis. The departmental Safety Committee was reconstituted.

Staff Branch

The Staff Branch had a new structure approved, and provided a vastly improved service to management.

All workers' compensation files were transferred to regions and from November 1981, all workers' compensation claims will be dealt with through the Government Insurance Office on a regional basis.

During the year a substantial number of awards and determinations were handed down. As a result, the Salary Section processed awards and determinations affecting the majority of staff of the Department.

Equal Employment Opportunity

An interim management plan was submitted in October 1981 to the Director of Equal Opportunity in Public Employment. This plan was produced by officers who had been seconded from their normal duties. In December 1981, an equal employment opportunity coordinator was employed part-time. In April 1982, an equal employment opportunity coordinator was appointed full-time to produce a final management plan. The Department continues to maintain its thrust towards equal employment opportunity. Women's career development workshops have been held in each region. The women's liaison officers were encouraged to travel to the regions.

Personnel Resources Branch

All personnel officers undertook research and developed strategies in relation to personnel policy and practices for inclusion in the Department's Equal Employment Opportunity Management Plan.

Industrial Relations

Following the abolition of wage indexation, wages increased on average by about 15 to 20 per cent. This was due to work value increases in the Administrative

and Clerical Division, Scientific Officers and Veterinary Officers cases as well as purely economic increases.

Following negotiations with the Public Service Association and the Professional Officers' Association, the Public Service Board agreed to an award being made for professional advisory staff to work 35 hours per week irrespective of whether they work in the field or office.

Negotiations continued in respect to the flow-on of the 38 hour week to classifications employed under Crown Awards. In this Department, the 38 hour week will directly affect trade classifications and in particular farm staff. Negotiations on implementation of the shorter week are continuing.

STAFF AT 30 JUNE 1982

- Minister — Hon. J.R. Hallam, M.L.C.
- Director-General — G.H. Knowles
- Deputy Director-General — Dr. K.P. Sheridan
- Executive Director (Administration) — S.J. Day
- Executive Director (Research and Advisory Services) — Dr. S.G. Grimmert
- Executive Director (Regulatory Services) — G.R. Gregory
- Executive Director (Policy and Services) — J.E. Jessup
- Executive Assistant to Director-General — R.J. Jessup
- Executive Assistant to Deputy Director-General — F.S. Benecke

Chiefs of Divisions:

- Animal Health — D.A. Dickinson
- Animal Production — P.T. Gilchrist
- Marketing and Economics — Dr. C. Gellatley (Acting)
- Research and Advisory Services — K.E. Hutton
- Plant Industries — R.A. Claxton
- Administration — R.T. Swan

Regional Directors of Agriculture:

- North Coast — N.W. Vane
- New England and Metropolitan — Dr. A.N. Smith
- Orana and Far Western — O.R. Southwood
- Central Western, South Eastern and Illawarra — Dr. D.G. McDonald
- Murray and Riverina — B.D. Scarsbrick

STAFF STATISTICS

Departmental Establishment as at 30th June 1982

	Region*					Metropolitan	Other	Totals
	1	2	3	4	5			
Administration	6	12	8	12	9	161	12	220
Animal Production	38	49	32	50	27	78	7	281
Animal Health	269	252	91	260	119	301	7	1299
Plant Industries	38	112	22	54	93	172	3	494
BCRI	4	23	3	4	14	174		222
Biometrical	3	2	1	2	3	10		21
Marketing & Economic Services	3	7	4	4	6	45	6	75
Research & Advisory Services	143	286	78	227	302	71	14	1121
Pesticides Registration						25		25
	504	743	239	613	573	1037	49	3758

* Region 1: North Coast. Region 2: New England and Metropolitan. Region 3: Orana and Far Western. Region 4: Central Western, South Eastern and Illawarra. Region 5: Murray and Riverina.

Ministerial Employees as at 30th June 1982	
Board of Tick Control	305
Prickly Pear Destruction Commission	50

ENERGY MANAGEMENT PROGRAMME

In line with the Government's policy of implementing an energy conservation and management programme within departments and agencies, the Department of Agriculture formulated a corporate plan for energy in agriculture involving three areas:

- "Serving agriculture", which involves monitoring the State's rural energy demands and needs, identifying problem areas and implementing advisory programmes through the Department's advisory services.
- "In house", concentrating on energy management and the steps necessary to immediately reduce the Department's energy consumption. This will be followed by planning for modification and replacement of energy inefficient air conditioning plants and environmental control equipment.
- "New initiatives", with intermediate and long-term plans for research and development into energy conservation, substitution and production of energy in agriculture.

In March 1982, the Minister for Agriculture and Fisheries approved policy procedures to be adopted by the Department in implementing the Government's Energy Management Programme. This policy is activated and monitored within the Department by an "Energy Management Review Committee" consisting of senior officers. The Plant Engineer was appointed as a full-time energy coordinator with overall responsibility to formulate, implement and monitor the Department's energy management programme. The Department was divided into eight energy units (Regions 1,2,3,4 and 5, plus Rydalmere, Glenfield and Head Office), each with an energy management liaison officer responsible for collecting energy consumption data and implementing the energy management programme within the unit.

The main objectives of the Department's energy policy are:

- to establish "base" energy consumption figures as at 1978-79 consumption levels;
- to hold all energy usage at the level of June 1979, for the next five years; and
- to reduce electricity consumption by a minimum of 15 per cent.

Phase 1 involved increased awareness of energy usage, and commitment by staff to conserving energy on a day-to-day basis without expending any funds. Phase 2 involves minor modification to plant, equipment or operations requiring small capital outlay. Phase 3 involves major design changes to plant which may require considerable capital expenditure.

Base energy consumption figures of the Department were established, and it is estimated that savings of 10 per cent in electricity consumption were made. This drop in electricity consumption represented savings of \$80 000. Phase 1 is continuing, and modifications to plant and equipment are being made.

SAFE, RESPONSIBLE PESTICIDE USE CAMPAIGN

The home gardeners of Sydney were the target for a major campaign during November-December to encourage safety and responsibility in the use of pesticides. An important element of the campaign was the willing cooperation of a large sector of the media, and pesticide retailers.

The cooperators included the 13 best-known gardening writers and broadcasters in New South Wales who were the authors of a departmental booklet titled "Down to earth guide on garden pesticides — experts' hints on choice and use". Through these experts, a significant amount of valuable publicity was directed to the campaign messages. The 150 major garden centres and nurseries in Sydney distributed 250 000 copies of the booklet with customer purchases in two months. The Department's plant disease inspectors performed an invaluable function in explaining the campaign to the nurseries and gaining their cooperation.

Mr Allan Seale recorded a series of community service announcements about safe, responsible use of pesticides which were broadcast on more than half of the Sydney radio stations during November-December. Stickers and posters were also used at garden centres.

MAJOR FELLOWSHIP AWARDS

Dr F.R. Higginson, Director of Chemistry, Biological and Chemical Research Institute, was awarded a Churchill Fellowship for a study visit of six weeks to northern India and Pakistan. Dr Higginson initiated a comparative study of the structure and physical stability of soils used extensively for irrigation farming, with the aim of developing new research initiatives for New South Wales soils in similar climates.

Dr B.V. McCleary, Research Scientist, Biological and Chemical Research Institute, was awarded a Nuffield Foundation Travelling Fellowship, one of only five awarded in Australia in 1981, to enable him to travel to the Central Research Laboratories of the Unilever Company, England, to work for one year on modification of carbohydrates from plant sources for utilisation in food products.

Mr L.R. Greenup, Director, Pesticide and Environmental Studies and Mr J.A. Murison, District Horticulturist (Vegetables) were also awarded Churchill Fellowships to be taken up during 1982-83.

LAND USE ASSESSMENT

Land use assessment became increasingly important within the Department because of the loss of better quality agricultural land to incompatible use. The Department now has 10 staff involved in part-time or full-time agricultural land use assessment throughout the State. Requests for agricultural land determinations were received from more than 20 shires as well as special consultant studies for other State and Commonwealth authorities.

There has been an increase in liaison with local government, the Department of Environment and Planning, the Soil Conservation Service of New South Wales and the Department of Mineral Resources on matters of mutual interest. Throughout the year the Department investigated land use issues brought to its attention by concerned citizens.

A major study was undertaken in the Cudgen Durambah area of the north coast where unique agricultural land is being threatened by an increase in subdivision. The study brought together all aspects of agricultural land conflicts and made recommendations to the Tweed Shire Council. This study set a precedent for further studies in the north coast area.

Major studies were also completed in the Upper Hunter with further work continuing in the Lower Hunter region. The Department also has worked closely with the Department of Environment and Planning in the Illawarra area of New South Wales.

An investigation on the use of Landsat as a rapid method of agricultural land determination was started with the Division of Plant Industries and regional officers.

An additional 209 properties were inspected during the year for agricultural land determinations under the *Mining Act*, 1973. There was a large increase in the area to be inspected each year as more Exploration Licences had to be examined for agricultural land determination.

The Pesticides and Environmental Studies Unit and the Land Use Assessment Group were involved in assisting and training officers in land use assessment.

Plague locust control unit operating in the central west

ENVIRONMENTAL IMPACT STATEMENTS

The Department has now become recognised as a major contributor in assessing the impact of developments on agriculture. Forty-four Environmental Impact Statements were received by the Pesticides and Environmental Studies Unit during the year and these included major developments such as the enlargement of Glenbawn Dam; Bayswater to Mt Piper transmission line; Bayswater No. 2 Colliery; development of Pikes Gully colliery; Wallsend Borehold open cut colliery extension; Glendall Coal open cut mine; Ravensworth coal washery and rail loading facilities; Elcom Collieries near Liddell; and Lemington Coal Mine Holding, Warkworth.

The Department made submissions to several Courts of Inquiry throughout the year and personal representation was made at the Court of Inquiry into high rise dwellings on the far north coast.

GRASSHOPPER PESTS

Wingless Grasshopper

The wingless grasshopper outbreak declined in the northern and central tablelands early in the 1981 season but persisted in the southern tablelands.

The status of wingless grasshopper as a pest of pasture crops during the 1981 season was strongly influenced by early season rainfall and consequent levels of activity by nematode parasites.

The main problem area was in the southern tablelands where the Department continued to financially assist landholders undertaking control by providing insecticide at cost price. The loan of equipment and the coordination of aerial control by Pastures Protection Boards gave further savings to landholders. Insecticide worth almost \$38,000 was used under this scheme.



Australian Plague Locust

A major outbreak developed in the White Cliffs-Wanaaring area in September 1981 which posed a potential threat to the south west plains and Riverina. An intensive control campaign by the Australian Plague Locust Commission in October 1981 prevented migration from the outbreak area and there was little subsequent breeding by residual populations.

An outbreak in south-east Queensland extended south to the north west slopes and plains in mid-summer 1981. Joint control by the Department, Pastures

Protection Boards and the Australian Plague Locust Commission had stabilised this outbreak by the end of the season.

In January 1981 dispersed populations in the north central western plains again concentrated, leading to an outbreak centred on the Warren-Coonamble area. A southerly displacement during late February extended the outbreak into the south central western plain and eastern Riverina. A control campaign will be mounted in spring 1982 to prevent further expansion and to minimise crop losses.

DIAGNOSTIC AND TESTING SERVICES

Animal Health

Veterinary assistance (a total of 332 services) was provided on properties administered by the State Departments of Education, Corrective Services, Police, and the Health Commission; to universities; and to the Commonwealth Scientific and Industrial Research Organization.

The State Meat Inspection Service provided 721 batches of specimens for various research and teaching institutions.

Animal Health Diagnostic Services

The following two tables list:

- the origin and source of specimen consignments, other than those directly concerned with the Brucellosis Eradication Campaign, received in 1981-82; and,
- the number of serum samples received for tests under the Bovine Brucellosis Eradication Campaign during the years 1975-76 to 1981-82 at the Department's veterinary laboratories.

Origin and Source of Specimen Consignments Other than those Directly Concerned with the Brucellosis Eradication Campaign — 1981-82

Animal	Regional Veterinary Laboratories					Central Veterinary Laboratories Glenfield*	TOTAL	
	Armidale	Glenfield	Orange	Wagga Wagga	Wollongbar			
Cattle	735	1 765	498	616	1 424	4 464	9 502	(41.4%)
Sheep	980	501	1 233	1 455	70	632	4 871	(21.2%)
Pigs	198	248	161	309	232	243	1 391	(6.0%)
Poultry	119	59	76	82	173	948	1 457	(6.3%)
Other animals	720	896	512	499	1 342	1 344	5 313	(23.1%)
Other specimens	42	224	79	23	22	0	390	(1.7%)
TOTALS	2 794	3 693	2 559	2 984	3 263	7 631	22 924	

Source	Regional Veterinary Laboratories					TOTAL	
	Armidale	Glenfield	Orange	Wagga Wagga	Wollongbar		
Private practitioners	1 576	1 941	1 422	1 857	1 932	8 728	(57.1%)
Veterinary inspectors	649	836	565	682	580	3 312	(21.7%)
Departmental officers	379	917	511	416	738	2 961	(19.4%)
Others	190	Not Recorded	61	29	13	293	(1.8%)
TOTALS	2 794	3 694	2 559	2 984	3 263	15 294	

* Consignments referred to CVLs for specialist examination.

Number of Serum Samples Received for Tests under the Bovine Brucellosis Eradication Programme 1975-76 to 1981-82

Eradication Testing	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82
Glenfield	112 700	88 500	948 720	479 330	1 324 070	1 076 960	356 805
Armidale	72 800	62 320	737 110	988 190	758 150	385 400	391 210
Orange*	—	—	—	—	—	208 207	684 480
Wagga Wagga	27 370	22 230	17 760	232 190	866 690	657 350	438 460
Wollongbar	20 000	87 220	1 029 200	923 040	463 680	265 910	241 330
TOTAL	232 890	260 270	2 732 790	3 622 750	3 442 590	2 593 827	2 112 285

Abattoir Monitoring	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81	1981-82
Glenfield	144 100	213 500	295 490	297 640	255 630	206 080	121 830
Armidale	64 300	103 060	110 100	134 700	189 780	236 650	105 000
Orange	—	—	—	—	—	3 020	58 630
Wagga Wagga	21 950	40 950	26 290	15 430	18 190	21 840	28 660
Wollongbar	31 900	41 780	103 600	112 390	83 830	129 630	115 270
TOTAL	262 900	399 290	535 480	560 160	547 430	597 220	429 390
TOTALS	495 140	659 560	3 268 270	4 270 820	3 990 020	3 191 047	2 607 675

* From March 1981

Seed Production and Testing

Certification services were provided covering some 9688 hectares of pasture seed, grain legume and hybrid maize crops. A further 9963 hectares of winter cereals were produced under the registered cereal seed scheme.

The Agronomist (Seed Production) at Temora supervised the production of 90 tonnes of foundation grade cereal seed, much of which was supplied to growers of registered seed. A further 5 tonnes of basic grade lupins were also produced and distributed to certified lupin seed growers.

Of the 4932 samples analysed in the Seeds Laboratory, 602 were from the Australian Wheat Collection, 84 from the Police and other departments, and 1369 from commercial organizations. A

further 823 samples were tested on behalf of quarantine authorities. The remainder were tested for departmental officers, and registered and certified seed growers.

Plant Health Diagnostic Services

Plant specimens handled for disease identification totalled 1955 and 790 for parasitic nematodes. Plant diseases recorded for the first time in New South Wales totalled 47, and 2587 specimens were added to the Biology Branch Herbarium.

Outside organizations were supplied with 74 living cultures from the culture collection.

Australian Inoculants Research and Control Service

The service, financed by the Australian Agricultural Council, controls the quality of legume inoculants before release, and tests its standard at retail outlets in all States.

A total of 129 cultures were tested during production and of these 115 were passed. Of 242 packeted inoculants tested from retail outlets, 211 reached the necessary standard.

Chemistry Branch, Biological and Chemical Research Institute Services

(a) Analytical	Number of samples	Number of analyses
Plant analysis	6 794	80 514
Soil analysis	17 147	117 180
Soil physics	2 697	10 524
Mushroom compost	500	1 500
Fertilizer analysis	166	411
Water analysis	1 118	13 009
Stockfeed analysis	592	1 347
Pesticide analysis	870	2 150
Biochemical assays	850	850
Essential oils analysis	177	504
Cereal quality evaluations	350	2 980
Metabolizable energy	241	51
Body composition (poultry)	1 153	1 153
Total	32 655	22 633

(b) Advisory	Number of reports
Plant nutritional diagnoses	1 226
Fertilizer quality assessments	166
Soil fertility assessments	3 403
Soil physical/irrigation suitability assessments	290
Water quality assessments	1 094
Pesticide registration assessments	110
Essential oils quality assessments	177
Cereal export certification	20
Other expert opinions	25
Total	6 511

(c) Land use assessment	Number	Area involved (ha)
Department of Agriculture	1	600 000
Department of Environment and Planning	2	330 000
Shire councils	4	283 000
The Electricity Commission of N.S.W.	1	15 000
Total	8	1 228 000

(d) Other services

The Biological and Chemical Research Institute's chemistry branch analysed 1857 samples of soil, plants, water and fertilizers for 36 other departments and organizations.

Argentine Ant Eradication Campaign

Infestations	
New	4
Reinfestations	2
Area sprayed (hectares)	60.2
Surveys (hectares)	30 214
Re-surveys	
Properties	4 245
Area (hectares)	837.2
Inquiries — Phone & Personal	
Pesticides & Environmental Studies Unit, Level 5, McKell Building	984
Campaign Depot, Homebush	642

Appendix II

SUMMARY OF DEPARTMENT'S REGULATORY
ACTIVITIES UNDER VARIOUS STATE AND
COMMONWEALTH ACTS

(a) STATE ACTS

Agricultural Holdings Act, 1941

Matters referred to Minister	8
Disputes referred to Agricultural Committees	3

Farm Produce Agents Act, 1926

Licences issued	199
Complaints received	9

Apiaries Act, 1916

Apiaries registered	4 812
---------------------	-------

Chicken Meat Industry Act, 1978

Agreements registered	467
Disputes	4

Dairy Industry Marketing Authority Act, 1979

Inspections	6 862
Notices issued	208

Registration of Stock Brands Act, 1921

New South Wales applications	1 206
Victorian applications	46
Australian Capital Territory applications	26
Transfers	286
Re-gazettal	72

Stock Foods and Medicines Act, 1940

Products registrations	1 511
Products sampled	349

Prosecutions:

Failure to comply with chemical analysis	13
Sale of unregistered product	1
Total	14

Stock foods analysed submitted by inspectors	167
---	-----

Stock medicines analysed submitted by inspectors	37
---	----

Re-registrations	1 282
New preparations	219
Outstanding	643
Withdrawn	12
Refused	5
Total	2 161

Prosecutions relating to sale of unregistered products	1
---	---

Swine Branding Act, 1940

Brands registered	874
-------------------	-----

Fertilizers Act, 1934

Re-registrations	503
New registrations	71
Registrations refused	3

Samples analysed	
Submitted by adv	129
Submitted by ins	37

Cattle Compensation Act

Compensation was paid for 7004 cattle ordered to be destroyed because of suspected disease and for 13 carcasses condemned during meat inspection.

Meat Industry Act, 1978

The State Meat Inspection Service carried out antemortem and/or postmortem inspections of livestock at abattoirs and slaughterhouses throughout the State. This regulatory function is aimed essentially at the production of clean, wholesome meat.

Inspection of carcasses and viscera *(Section 223(3))

Adult cattle	1 036 160
Calves	206 525
Sheep, lambs and goats	5 562 036
Pigs	1 057 892

*Including inspections under the *Commerce (Trade Descriptions) Act* for export purposes.

Reinspection of meat from other States and New Zealand
(Section 43)

	Carcasses	Piecemeat (kg)
Beef and buffalo	105 376	13 520 397
Calves/veal	147 147	520 856
Sheep and goats	407 410	5 791 813
Processed meats		11 799 702

Swine Compensation Act, 1928

Compensation was paid for three pig carcasses condemned during meat inspection because of septicaemia.

Horticultural Stock and Nurseries Act, 1969

Nurserymen registered	4 300
Resellers registered	5 400

Plant Diseases Act, 1924

Prosecutions	29
--------------	----

District inspections	
Orchard, plantations, vineyards (for advice/regulatory action)	7 383
Orchard, plantations, vineyards (for planting statistics only)	1 099
Fruit shops and stalls	4 824
Home gardens	22 390
Grain storages and processing premises	1 313
Notices issued for pest and disease control	481
Nurseries	2 936
Resellers	2 796
Media releases/publications	118
Bunchy top detections in banana plantations	2 038

Market Inspections

Numbers of packages covered by detention notices issued for non-compliance with grading, packing or labelling regulations

Apples	33 718 +	66 bins
Pears	41 308 +	37 bins
Citrus	9 772 +	8 bins
Grapes	7 110	
Bananas	1 274	
Tomatoes	16 654	
Rockmelons	6 368	
Potatoes	55 894	
Vegetables	40 104 +	546 bins
Mangoes	426	
Peaches	— +	10 bins
Avocados	1 158	

Castaway Certificates (no. of packages)	2 850
---	-------

Potato Growers Licensing Act, 1940

Registrations of potato growers	342
---------------------------------	-----

Pest Destroyers Act, 1945

Applications for registration of pest destroyers continued to be received under the *Pest Destroyers Act, 1945* until its repeal on 30 October 1981.

The Pesticides Registration Section considered 138 applications for registration of products under the Act, and 141 requests for approval of new labels for registered products during the period from 1 July to 30 October 1981.

Pesticides Act, 1978

During the year ended 30 June 1982 the Pesticide Registration Section considered 760 applications for registration of new products under the Act; 500 applications for registration of additional labels for registered products; and 30 applications for approval of additional containers.

In addition, 175 applications for issue of permits under the Act were received.

Stock (Chemical Residues) Act, 1975

Samples of fat collected from cattle slaughtered at 24 abattoirs were analysed for the presence of chemical residues. In all 11 623 samples were taken, 11 381 of these were analysed and 8198 (70.5 per cent) of all samples were free of residues.

Stock Diseases Act, 1923

Quarantine was applied for the following diseases:

Disease	Number of quarantines	
	Properties	Stock
Anthrax	13	16 910
Brucellosis in cattle	624	
Lice in sheep	1 029	1 506 539
Ked in sheep	1	1 100
Lice and ked in sheep	1	3 100
Tuberculosis in cattle	26	
Tuberculosis in pigs	1	
Tuberculosis in poultry	4	
Tick fever in cattle	1	183

Prosecutions —

A total of 37 owners involving 50 charges were prosecuted resulting in fines totalling \$11 174. Prosecutions were carried out in the following fields:

Lice in sheep	21
Brucellosis in cattle	3
Swill feeding of pigs	2
Tail tagging	3
Queensland border crossings	7
Tick Quarantine Area	1

The control of brucellosis and tuberculosis in cattle is summarized in the standard format adopted for the National Brucellosis and Tuberculosis Eradication Campaigns:

Bovine Brucellosis for New South Wales:		30.6.82
Herds (total)	54 253	
Dairy herds	3 040	
Monitoring:		
Abattoirs		
Blood samples	392 326	
Confirmed reactors	547	
Confirmed reactors (per cent)	0.1	
Herds in which reactors were found	336	
Milk Ring Testing		
Herds checked	3 042	
Positive MRT herd tests	32	
MRT herds confirmed positive by blood test	28	
Miscellaneous Field Testing		
Herds tested	2 137	
Cattle tested	84 386	
Reactors	604	
Total Monitoring		
Herds tested	34 646	
Herds positive	527	
Cattle tested	476 712	
Reactors	1 151	
Eradication:		
Herds tested during year	19 697	
Blood samples tested	1 866 500	
Reactors	4 355	
Disposal of Reactors:		
Reactors for which compensation paid	6 469	
Net compensation paid (\$)	775 809.83	

Vaccination:		
Cattle vaccinated with Strain 19		5 587
Doses of Strain 45/20 used		0

Infection Data: Progress

	30.6.81		30.6.82	
	No.	per cent	No.	per cent
Herd status				
Not assessed	7 202	12.8	1 260	2.3
Suspect	727	1.3	144	0.3
Infected	644	1.1	262	0.5
Restricted	1 142	2.0	394	2.4
Provisionally clear	2 933	5.2	1 325	2.4
Tested negative	20 504	36.3	14 590	26.9
Monitored negative	2	0.0	12	0.0
Confirmed free *	23 291	41.2	36 233	66.8
Accredited free	27	0.0	33	0.1
Prevalence (per cent)				
Herd		1.31		0.49
Individual		0.06		0.03

* Confirmed Free herds can move anywhere in Australia. They only need a Form 3 and the approval of an inspector.

Bovine Tuberculosis for New South Wales — Provisionally Free Area 30.6.82

Basic Statistics:		
No. of cattle herds		64 017
No. of cattle		5 700 941
Monitoring:		
Abattoirs		
No. cattle slaughtered		1 907 900
No. with TB lesions (presumed plus confirmed)		31
No. successful tracebacks to herd of origin		30
Percentage of successful tracebacks		96.9
Testing		
No. of cattle tested		22 879
No. reactors		74
Total no. herds tested		193
No. herds confirmed infected		8
No. herds tested from traceback		21
Eradication:		
No. infected herds (at beginning of year, plus those detected during the year)		39
No. herds tested		39
No. cattle infected herds		12 934
No. individual cattle tests		25 634
No. reactors		409
Disposal of Reactors:		
No. reactors detected		482
No. reactors slaughtered		479
No. reactors autopsied (meatworks and field)		479
No. reactors with lesions		328
No. reactors for which compensation paid		247
No. casual cases for which compensation paid		12
Net compensation paid (\$)		68 660.50
Laboratory:		
No. bacteriological accessions		57
No. with confirmed tuberculosis		33
Infected Herds:		
No. infected herds at beginning of year		13
No. cattle in infected herds at beginning of year		2 704
No. infected herds at end of year		19
No. cattle in infected herds at end of year		7 931
Prevalence (per cent):		
Herd		0.0297
Individual		0.0047

Board of Tick Control Major Activities:

Activity	Cattle	Number			Carcases
		Horses	Sheep & Goats		
Examinations	2 296 086	32 449	2 122	74 146	
Dippings (including voluntary dipping)	2 683 537	536	370	—	
Spraying	10 073	29 644	1 754	—	
Policy examinations	853 116	—	—	—	
Stock movement control	917 962	21 351	—	—	

The Board of Tick Control Laboratory examined 29 075 samples.

Dip analysis	chemical analyses	13 022
	pH determinations	1 761
Pesticide residue survey	beef fat samples	12 723
Residue development	samples	1 569

Queensland Border Control

Inspectors on the border outside the Tick Quarantine Area supervised the entry into New South Wales of 228 383 cattle, 631 905 sheep, 17 677 pigs, 7211 horses, 9717 goats and 202 other animals.

Veterinary Surgeons Act, 1923

The Veterinary Surgeons Board approved 121 new registrations, 52 removals from the register, 10 restorations to the register and 1381 re-registrations of veterinary surgeons.

The Veterinary Surgeons Investigating Committee fully investigated 23 complaints for professional misconduct. Of these, 17 complaints were dismissed, one veterinarian was reprimanded, three were cautioned and two were referred to the Veterinary Surgeons Disciplinary Tribunal. Of these last two cases, one resulted in a suspension from the register for two months, while the other was still to be heard by the Tribunal at the end of the period.

Amendments were made to regulations under the above Act to provide for fee increases payable by veterinary surgeons.

Stock (Artificial Insemination) Act, 1948

Three artificial breeding centres were registered for cattle and two for sheep. Two sub-centres were also registered. Certificates of Competency were issued to six persons in relation to cattle and one for sheep.

Stock (Chemical Residues) Act, 1975

Samples of fat collected from cattle slaughtered at 24 abattoirs were analysed for the presence of chemical residues. In all 11 623 samples were taken, 11 381 of these were analysed and 8198 (70.5 per cent) of all samples were free of residues.

Cattle Compensation Act, 1951

Compensation was paid for 7004 cattle ordered to be destroyed because of suspected disease and for 13 carcasses condemned during meat inspection.

(b) COMMONWEALTH ACTS

Quarantine Act, 1908

Prosecutions:	Plant	Animal
Quarantine Act	1	3
Customs Act	15	27
Both Acts	50	34
Quarantine fees collected (\$)	884 292	218 674
Passenger clearance:		
By sea:		
Vessels met	118	
Passenger arrivals	69 352	
Quarantine interceptions	622	
By air:		
Flights met	7 737	
Passenger arrivals	1 293 213	
Quarantine interceptions	187 080	
Parcels post:		
Parcels examined	18 784	10 985
Parcels needing quarantine action	5 371	901
Import permits issued:	55 942	
Cargo:		
General:		
Vessels attended	645	
Seed sampled for examination	483	
Vehicles steam cleaned	1 609	
Containers:		
Vessels discharged Sydney Port & Botany	1 415	
Containers discharged	193 351	
Action on containers*:		
FCLs immediate delivery	100 011	
FCLs depot inspection	51 409	
LCLs depot inspection	39 209	
FCLs city approved premises	1 611	
FCLs follow up inspections	1 322	
Infringements revealed	69	
International airport terminal (tonnes)	77 334	
Richmond RAAF terminal (tonnes)	6 273	
Timber imports (cubic metres)	575 065	
Quarantine treated (cubic metres)	14 375	
Approved premises for processing	162	

*FCL: full container load; LCL: less than full container load

Nursery stock:	
Ornamentals to approved quarantine houses	31 235
Plant Quarantine Station — number of lines, being:	9 307
Seeds for Department and Universities	120
Seeds for private imports	5
Fruit trees for Department	82
Other imports for Department	70
Plants for private importers	9 030
Exotic pest interceptions:	
Giant African snail, <i>Achatina fulica</i>	1
Woodwasps, <i>Siricidae</i>	6
Dampwood termites, <i>Zootermopsis angusticollis</i>	1
<i>Trogoderma</i> sp.	2
Exotic snail spp	8
Animal imports:	
Landing permits issued	1 836
Animals landed:	
Domestic livestock	1 277
Animal pets	1 520
Aquarium fish	2 689 443
Others	2 364
Animals entering quarantine:	
Dogs and cats	631
Horses and donkeys	178
Semen imported:	
Cattle (doses)	9 895
Dog (doses)	—
Ships' pets:	
Animals bonded	324
Fish bonded	924
Animal product imports:	
Landing permits issued	2 436

Main products landed (tonnes):		
Tinned meats	2 108	
Chilled/frozen meat	1 616	
Casings	1 836	
Cheese	6 712	
Fish products	2 315	
Glue pieces	1 432	
Fish/meat meal	3 136	
Stock feed	256	
Wool	1 526	
Animal hair	317	
Prohibited materials seized:		
Meat and meat products (kg)	4 470	
Cheese (kg)	832	
Milk products (kg)	766	
Eggs	2 314	
Egg products (kg)	366	
Other materials (kg)	682	
Rawhide pieces	736	
Animal exports:		
Health certificates issued	1 845	
Main exports:		
Domestic livestock	2 666	
Animal pets	1 794	
Birds and poultry	2 739	
Day-old chickens	476 462	
Hatching eggs	1 293 148	
Others	4 818	

Commerce (Trade Descriptions) Act, 1905

Grain	Tonnes	
	Inspected	Rejected
Ships surveyed for grain export (number)		
	121	63
Wheat	2 852 516	7 243
Barley	135 489	7 217

Fresh fruit and vegetables:	Packages	
	Inspected	Rejected
Apples	87 739	3 846
Pears	45 432	2 681
Citrus	161 894	4 091
Stone fruits	157 754	5 191
Grapes	117 206	13 280
Strawberries	9 536	1 024
Pineapple	6 389	3 110
Mangoes	35 502	4 695
Rockmelons	28 788	2 165
Tomatoes	37 377	1 347
Other fruit	11 917	193
Potatoes	23 874	776
Onions	61 543	5 760
Other vegetables	169 652	1 820

General	Inspected
Rice	556 920 tonnes
Malt barley	13 015 tonnes
Vegetable seed	6 979 packages
Palm seed	4 522 packages
Plants	8 213 packages
Pasture seed	12 013 sacks
Maize seed	2 265 bags
Nuts	10 349 cartons
Empty containers	3 671

Appendix III

FINANCIAL SUMMARY 1981-82

Departmental

The Department of Agriculture's day-to-day running costs are met from the Consolidated Revenue Fund (CRF). Receipts from the administration of various Acts of Parliament, as well as contribution from the Commonwealth towards certain specified functions, are paid into the CRF. Expenditure during 1981-82 by the Department totalled \$76 085 931 from CRF while revenue amounted to \$14 764 691. The expenditure of \$76 085 931 financed, among other things, such functions as:

Cattle tick control	\$ 9 396 543
Agricultural education and advisory services	\$ 8 814 054
Biological and chemical research	\$ 4 960 444
Agricultural research	\$11 868 222

Extension and Applied Research

In earlier years the Commonwealth Government provided funds for extension and applied research from the Commonwealth Extension Services Grant. Funds from this source ceased on 30th June 1981.

Other Research Finance

Funds provided by industry, semi-government bodies and special Commonwealth Government grants are utilised in many research programmes and projects conducted by the Department of Agriculture. The Department relies heavily on this finance for research work and these sources provided \$2 693 124 in 1981-82. Expenditure for the year amounted to \$2 358 476.

Capital Works Programmes

Funds for various capital works programmes are provided from the General Loan Account (GLA) and Commonwealth Government grants under the Advanced Education Acts. General Loan is financed by the State of New South Wales, while Advanced Education is financed by the Commonwealth.

Expenditure in 1981-82 on capital works was \$650 000 from the GLA.

The cost of maintaining the Department of Agriculture is met from the CRF, whilst capital expenditure on buildings, equipment and permanent improvements to departmentally owned property is a charge on the GLA.

In addition to these sources of funds, the Department is assisted in financing certain lines of research and development, together with the control of insect pests and animal diseases, by levies on industry and by grants from the Commonwealth, semi-government and public and private organisations. Operations in this category are reflected in a large number of accounts within the classification of "special deposits" accounts. The operations on some of the more significant special deposits accounts are detailed in this report.

Comparative Statement of Expenditure

Account	1980-81 \$	1981-82 \$	Variation \$	+ or - —
Consolidated Revenue Fund	66 853 513	76 085 931	9 232 418	+
General Loan Account	2 199 464	650 000	1 549 464	—
Special deposits accounts	30 744 738	29 390 473	1 354 265	+
Total	99 797 715	106 126 404	6 328 689	+

The reduction in expenditure in special deposit accounts was due mainly to the Commonwealth Extension Services Grant ceasing from 1st July 1981.

Consolidated Revenue Fund Expenditure

Following are details of expenditure from CRF for the previous two years:

Budget heading	1980-81 \$	1981-82 \$	Increase \$
Central administration	6 585 256	7 459 604	874 348
Biological & Chemical Research Institute	3 997 168	4 560 944	563 776
Plant industry	5 188 799	5 860 226	671 427
Horticulture	4 941 850	5 642 351	700 501
Research services	10 566 800	11 868 222	1 301 422
Agriculture education & advisory services	7 028 094	8 814 054	1 785 960
Animal health & production	20 302 483	22 483 987*	2 181 504
Cattle tick control	8 243 063	9 396 543	1 153 480
Total	66 853 513	76 085 931	9 232 418

* Includes State's contribution to National Bovine Tuberculosis and Brucellosis Eradication Campaign of \$2 606 000. This amount was transferred to special deposits account. Details are given later in this report.

General Loan Expenditure 1981-82

	\$
Glenfield Veterinary Research Station: water supply	1 000
Orange Agricultural Research and Veterinary Centre: laboratory/administration building	99 966
Temora Agricultural Research and Advisory Station: grain storage	11 677
Wagga Agricultural Research Institute: grain shed	31
Plant and equipment: purchases for whole of the Department	446 769
Road construction or renewal for the whole Dep't	30 492
Relocation of Seeds Laboratory	60 065
Total	650 000

Special Projects or Services Within the Department

Transactions on some of the more significant special projects or services within the Department's operations during 1981-82 are given on the following pages.

Graham Park Breeding Services, Berry

From 1st July 1980 the operations of the Artificial Stock Breeding Service, Berry, transferred from the control of the Dairy Industry Marketing Authority of New South Wales to the Department of Agriculture. The Service was renamed Graham Park Breeding Services. Details of income and expenditure for the year ended 30th June 1982 are as follows:

Income	\$	\$
Berry semen sales	254 429	
Sale of goods and liquid nitrogen	98 308	
Miscellaneous fees	106 037	
Surplus: Consignment Semen Working Account		47 420
Total income		506 194

Expenditure	\$	\$
Salaries and payments in the nature of salaries	299 091	
Subsistence and transport expenses	36 107	
Stores	165 058	
General operating expenses	81 333	
Plant and equipment	28 211	
Purchase of motor vehicles	18 260	
Purchase of bulls	25 300	
Total expenditure		653 360

Deficit	147 166
Add other income: sale of Government property	17 528
Net deficit	129 638

As at 30th June 1982, outstanding debtors totalled \$117 345 whilst expenditure commitments amounted to \$28 180.

Commonwealth Grant for Colleges of Advanced Education

Expenditure on current annual allocations is detailed below:

Annual allocation: 1980	\$	\$	
Expenditure to 30th June 1981		69 416	
Expenditure 1981-82			
Portable building		4 296	
Purchase of equipment		20 725	
			94 437
Annual allocation: 1981			
Expenditure to 30th June 1981		9 381	
Expenditure 1981-82			
Portable classroom		13 283	
Shed		35 459	
Purchase of equipment		45 323	
			103 446
Annual allocation: 1982			
Expenditure 1981-82			
Erection of shed		556	
Purchase of equipment		5 912	
			6 468
Total expenditure to 30th June 1982			204 351

In addition to the above expenditure an amount of \$7401 was refunded to the Commonwealth being the unexpended balances of earlier years allocations, namely:

Commonwealth Grants for State Secondary Schools

Technical Training Projects

Year	Grant
1976	\$1 393
1977	\$ 658
1979	\$5 350
	<u>\$7 401</u>

This grant has now terminated. No expenditure arose during 1981-82.

Australian Development Assistance Bureau Working Account

Finance for Australian Development Assistance Bureau projects is provided by the Bureau. In addition to providing technical expertise and advice, the projects in various countries are managed by departmental personnel. Details are below for the year ending 30th June 1982.

	\$	
Balance as at 1st July 1981	721 354	
Receipts during the year, 1981-82	1 934 770	
Advances: miscellaneous projects (unexpended)	45 577	
	<u>2 701 701</u>	

Less expenditure	\$	
Salary & allowances	366 340	
Travelling expenses	142 976	
Materials & equipment	927 271	
Other expenses	34 934	
Overhead expenses	110 913	1 582 434
Balance as at 30th June 1982		<u>1 119 267</u>

The expenditure on specific projects is detailed hereunder:

Bangladesh Cattle Project No. 028506

Salaries	190 558	
Materials & equipment	211 350	
Other operating costs	123 348	
	<u>525 356</u>	

Sri Lanka — Lower Uva Project Phase 1, No. 004701

Salaries, allowances	56 098	
Construction unit	78 147	
Other operating costs	1 564	135 809

Sri Lanka — Lower Uva Project, Phase II, No. 004002

Salaries & allowances	87 091	
Materials & equipment	636 911	
Other operating costs	137 520	861 522

Seychelles Dairy Cattle Project No. 086801

Salaries & allowances	10 958	
Materials	864	
Other operating costs	26 390	38 212

Department of Agriculture, support unit

Salaries and allowances	21 635
Total expenditure: 1981-821	<u>582 434</u>

Australian Inoculants Research & Control Service — Working Account

The Australian Inoculant Research and Control Service (AIRCS) came into being in 1970 with the approval of Agricultural Council for the specific purpose of maintaining quality control in legume inoculants. It succeeded the University of Sydney-Department of Agriculture Laboratory Service (UDALS), which started in 1956. UDALS was set up because many sowings of pasture legumes were failing because of poor nodulation.

The objectives of AIRCS are four-fold. Firstly, to ensure that the quality of legume inoculants on sale in Australia at least reaches a required minimum standard. This objective relates to the numbers of bacteria in inoculants, and their effectiveness as nitrogen fixers. The second objective is to seek more effective strains, and also strains for use with new legume crops. Thirdly, AIRCS is responsible for monitoring the number of *Rhizobium* bacteria on pre-inoculated or custom inoculated seed produced in Australia. Fourthly, if manufacturers fail consistently to meet prescribed standards, then AIRCS is required to identify the causes and instigate research programmes to overcome the problems.

AIRCS was initially housed at the Biological and Chemical Research Institute, Rydalmere, and was moved to the Horticultural Research Station, Gosford, in 1973.

Following is a statement of receipts and payments for the above account for the year ended 30th June 1982:

Australian Inoculants Research & Control Service — Working Account

	\$	
Balance at 1st July 1981		1 679
Receipts :	\$	
Contribution from :		
New South Wales	16 650	
Queensland	6 750	
South Australia	5 400	
Tasmania	900	
Victoria	5 850	
Western Australia	9 450	
Industry sources	6 000	51 000
		<u>52 679</u>
Payments :		
Salaries	46 376	
Operating expenses	5 975	52 351
Balance as at 30th June 1982		<u>328</u>

Cattle Compensation Fund

	\$	\$
Balance as at 1st July 1981		3 348 547
Receipts :		
Interest	280 000	
Levies	276	
Stamp Duty	175 282	
Commonwealth contributions tuberculosis reactors	18 610	
Commonwealth contributions brucellosis campaign	379 314	853 482
		<u>4 202 029</u>

Payments :		
Compensation :		
National brucellosis	775 810	
National tuberculosis	62 731	
State tuberculosis	2 356	
Other diseases	3 187	
Other payments	23 859	867 943

Administration costs of Department of Agriculture	80 398	948 341
Balance in fund at 30th June 1982		<u>3 253 688</u>

Balance of \$3 253 688 includes \$3 000 000 invested by the Treasury at an interest rate of 15 per cent per annum.

Cattle Compensation Payments 1981-82

Disease Group	Number of claims			Number of animals			Payment details		
	Reg 5	Reg 6	Total	Reg 5	Reg 6	Total	Reg 5	Reg 6	Total
Brucellosis	1 573	—	1 573	6 469	—	6 469	775 810	—	775 810
Johne's disease	13	—	13	17	—	17	3 187	—	3 187
Tuberculosis	43	12	55	236	13	249	62 731	2 356	65 087
Ex Gratia claims	86	—	86	282	—	282	23 859	—	23 859
TOTAL	1 715	12	1 727	7 004	13	7 017	865 587	2 356	867 943

Commonwealth Extension Services Grant

Name of item or project	Expenditure	
	1980-81	1981-82
	\$	\$
Regional/developmental research	861 669	19 601
Market and marketing information	15 271	2 255
Information services	254 822	52 437
Farm financial management	10 101	3 737
Farm organisation and operations management	120 184	25 839
Staff training and development	37 289	14 173
Evaluation of extension & applied research	800	—
Other organisations	5 000	—
	<u>\$1 305 216</u>	<u>\$118 042</u>

	\$	\$
Receipts from inspection fees		6 599 676
Less :		
Salaries, wages and associated items	6 947 836	
Travelling expenses and vehicle running costs	510 599	
General stores, freight and cartage	60 194	
Books, periodicals and printing	1 572	
Rent, cleaning, electricity, phone and postage	6 255	
Laundry expenses	25 838	
Sundry expenses	669	
*Overhead expenses	<u>1 372 458</u>	
		<u>8 925 421</u>
Net deficit on Meat Inspection Service		<u>2 325 745</u>

* Overhead expenses of \$1 372 458 include administration charges; workers' compensation insurance premium; payroll tax; and employers' contribution to superannuation funds not charged direct.

Eradication of Bovine Tuberculosis & Brucellosis Working Account

	\$	\$
Balance in fund at 1st July 1981		319 936
Income:		
Contributions by New South Wales		2 606 000
Contributions by Commonwealth		5 967 740
Fees for services rendered		1 655
Sales of assets		4 100
		<u>8 899 431</u>
Expenditure:		
Salaries wages and associated charges	6 946 503	
Travelling expenses	102 454	
Motor vehicle running costs	503 360	
Postage and telephone	182 560	
Freight and cartage	70 506	
Stores and equipment	231 492	
Maintenance and sundries	43 646	
Rent and rates	148 450	
Repairs and maintenance	15 986	
Cattle tags	61 065	
Computer running and maintenance	26 286	
Payments to private practitioners for brucellosis vaccinating	7 211	
for brucellosis sampling	<u>41 440</u>	48 651
Administration costs		200 000
Purchase of capital plant and equipment	85 630	
Purchase of motor vehicles	125 910	
Land, building and improvements	<u>22 560</u>	<u>8 815 059</u>
Balance		<u>84 372</u>

Against the balance of \$84 372 quoted above are firm commitments of \$42 000 for capital items and \$43 850 for other items. The commitment of \$42 000 for capital items is made up of:

	\$
Centrifuges	14 000
Electronic precision balance	2 000
Diluting machine	8 000
Bio-safety cabinets	<u>18 000</u>
	<u>42 000</u>

and takes into account the proceeds from the sale of the surplus vehicles.

The Commonwealth's contribution for 1981-82 was \$2.29 for each \$1 contributed by the State.

Meat Inspection Service

The Meat Inspection Service is administered under the *Meat Industry Act*, which makes provision for a scale of fees. Following is a statement of receipts and costs associated with this Service for the year ended 30th June 1982.

Noxious Insects Destruction Account During 1981-82

The *Noxious Insects Act* provides for the striking and collection of a levy under certain specified conditions. Moneys received from the levy are paid into a special deposits account and applied by the Minister for purposes of the Act.

Following is a financial statement of the operations of this account during 1981-82.

	\$	\$
Balance at 1st July 1981		729 367
Receipts :		
Levies	1 116 758	
Sales of insecticides	9 161	
Sales of assets	<u>15 245</u>	<u>1 141 164</u>
		<u>1 870 531</u>
Payments :		
Contribution to Australian Plague Locust Commission	237 523	
Equipment purchases	17 108	
Insecticide purchases	3 656	
Motor vehicle purchases	6 836	
Maintenance/repair of equipment	2 163	
Helicopter/aircraft hire	32 722	
Materials & sundry purchases	2 507	
Motor vehicle running costs	15 138	
Repayment of Treasury loan	250 000	
Salaries	20 625	
Sundry expenses	2 090	
Travelling expenses	<u>9 071</u>	<u>599 439</u>
Balance at 30th June 1982		<u>1 271 092</u>

During 1981-82 the fund repaid the Treasury an advance of \$250 000 received in 1978-79. Advances still repayable are \$250 000 received in 1978-79, and \$1 200 000 received in 1979-80. It is intended to progressively repay these.

Swine Compensation Fund

Following is a summary of operations on the Swine Compensation Fund for year ending 30th June 1982.

	\$	\$
Balance in fund at 1st July 1981		1 426 539
Receipts:		
Interest		<u>135 000</u>
		<u>1 561 539</u>
Payments:		
Compensation	334	
Administration costs	5 400	
Research costs	<u>89 826</u>	<u>95 560</u>
Balance in fund 30th June 1982		<u>1 465 979</u>

Balance of \$1 465 979 includes \$1 418 000 invested by the Treasury at an interest rate of 12.28 per cent per annum.

This Act provides for the establishment of a Board of Veterinary Surgeons for New South Wales. Fees and penalties collected are paid to the credit of Consolidated Revenue Fund from which the administrative expenses of the Board are met.

Receipts			Payments		
Complaint fees	\$ 460	\$	Administration	\$	\$
Less:					
refunds	<u>320</u>	140			
Examination fees		60	Examination expenses	640	
Registration fees		2 570	General expenses	115	
Restoration fees		790	Legal fees : Crown Solicitor	2 440	
Roll fees		44 470	Postage	1 397	
			Printing & stationery	208	
			Salaries	32 999	
			Registrar-General fee	10	37 809
			Board of Veterinary Surgeons		
			Members fees	3 020	
			Members travelling	2 149	5 169
			Investigating committee		
			Members fees	173	
			Members travelling	60	773
			Excess of receipts over payments		4 279
		<u>48 030</u>			<u>48 030</u>

The *Wheat Marketing (Barring of Claims) Act*, 1929 barred all claims under wheat marketing operations conducted by the Government in earlier years and directed that after the making of specified grants for research purposes, surplus moneys from operations be paid to a fund for investment.

Income from investments may be applied, as the Minister of Agriculture determines, towards agricultural education and research. Financial results for 1981-82 are as follows:

Donation : Grain Handling Authority	\$ 250	Commitments entered into during the year	\$ 7 686
Interest on investments & savings	7 491	Bank fees	1
	<u>7 741</u>	Transfer of unutilised revenue to accumulated funds	<u>54</u>
			<u>7 741</u>

Liabilities	\$	\$	Assets	\$
Balance 1st July 1981	111 398		Investments in Govt. securities (face value)	109 900
Capital gain on redemption stock	234		Commonwealth Bank savings	6 914
Unutilised revenue at 30th June 1982	<u>54</u>		Accrued interest at 30th June 1982	1 572
		111 686		
Commitments at 30th June 1982		<u>6 700</u>		
		118 386		<u>118 386</u>

Statement of Receipts: Consolidated Revenue Fund Year Ended
30th June 1982

Receipts for services rendered :	\$
Rents	122 206
Student fees	325 860
Fees :	
Apiary registrations	36 156
Dairy Industry Act	NIL
Farm produce agents	607
Fertilizers Act	6 059
Pest Destroyers Act	88 805
Poultry Processing Act	8 286
Stock brands registration	16 686
Stock Foods and Medicines Act	65 187
Swine brand registrations	1 950
Veterinary Surgeons Act	50 650
Broiler growing agreements	2 300
Ovine brucellosis accreditation	6 734
Contribution from Commonwealth :	
For administration of plant quarantine	1 910 277
For administration of animal quarantine	566 027
For administration of Commerce Act	462 936
For laboratory on dairy detergents and sanitisers	60 665
For Export Certification of livestock	115 200
From CSIRO for cotton research	83 787
From apprentices full time training scheme	1 170

Fees :	
Dipping	15 917
Inspection — Plant Disease Act	52 049
Inspection — Meat Industry Act	6 599 676
Herd recording	418 744
Seed certification & testing	31 509
Miscellaneous	215 153
Administration costs — Cattle Compensation Fund	80 398
Administration costs — Swine Compensation Fund	5 400
Commission on premium, collected	33 439
Reimbursements — China projects	180 558
Miscellaneous receipts for service rendered	500 527
Total receipts for services rendered	12 064 918
General miscellaneous receipts :	
Fines & forfeitures (including bond liability)	7 567
Interest	1 029
Fees and sales — Graham Park Breeding Service	473 825
Sale of farm produce	1 035 326
Sale of Government property	141 134
Repayments to credit of previous years votes	512 599
Transfer of part balance of special deposits accounts no longer required	3 152
Miscellaneous unclassified receipts	26 336
Pastures Protection Board 3% contribution	100 320
Employer's liability to State Superannuation Fund	382 697
Sale of publications	14 981
Fees — public officers	807
Total miscellaneous receipts	2 699 773
Grand Total — ALL RECEIPTS	14 764 691

Appendix IV

COMMITTEES, COUNCILS, TRUSTS AND MARKETING
BOARDS

Advisory Co-ordinating Committee, Department of Environment and Planning
Agricultural Bureau Executive Council
Agricultural Chemicals Committee, Department of Primary Industry
Agricultural Education Co-ordinating Committee
Air Cargo Facilitation Committee
Argentine Ant Eradication Committee
Australian Agriculture Remote Sensing Committee
Australian Seed Industry Advisory Committee
Australian Seeds Committee
Australian Soil and Land Resource Committee
Australian Tobacco Board
Australian Weeds Committee
Australian Year of the Tree Committee
Banana Marketing Control Committee
Barley Marketing Board
Barley Seeds and Classification Committee
Catchment Area Protection Board
Central Coast Agricultural Bureau & Extension Committee
Central Coast Citrus Marketing Board
Central Coast (N.S.W.) Citrus Marketing Board
Chemicals Review Committee (CRSC) to National Advisory Committee on Chemicals
Chief Quarantine Officers (Plants) Committee
Coal Research Development Committee
Coastal Council of New South Wales Committee
Coastal Council of New South Wales Research Sub-committee
Committee to Recommend Safety Directions and First Aid Statements for Pesticides, Poison Schedule (Standing) Committee, National Health and Medical Research Council
Commonwealth Technical Committee on Agricultural Chemicals
Course Advisory Committee for the Life Sciences, New South Wales Institute of Technology
Co-ordinating Committee of Agricultural Engineering (under SCA)
Co-ordinating Committee on Pesticide Residues in Meat, Australian Meat Research Council, Queensland
C.S.I.R.O. Vine Improvement Research Committee
Department Committee on Pesticide Residues in Plant and Plant Products

Departmental Committee on Pesticide Residues in Animals and Animal Products
Dried Fruits Research Committee
Egg Marketing Board
Eighth Conference of the International Organization of Citrus Virologists Trust Committee
Environmental Protection of Areas Affected by Agricultural Activities Sub-committee of Technical Advisory Committee of State Pollution Control Commission
Essential Oils, Standards Association of Australia Committee
Executive Committee — Weed Society of N.S.W.
Farm Produce Combined Industry Committee
Farm Writers' and Broadcasters Society of New South Wales
Gosford Horticultural Postharvest Research Laboratory Advisory Committee
Grain Sorghum Marketing Board
Horticultural Stock & Nurseries Act Advisory Committee
Hunter Valley Conservation Trust
Inquiry by N.S.W. Government into the Use and Safety of 2,4,5-T
Inter-departmental Committee on Surface Coal Mining of Alluvial Lands of the Hunter Valley
Inter-departmental Committee on Pesticide Residues and Economic Poisons
Inter-Governmental Liaison Committee on Water Hyacinth
Irrigation Research & Extension Committee
Joint Rural Land Advisory Committee
Joint Rural Land Liaison Committee
Laboratory Glassware and Related Apparatus, Standards Association of Australia
Lemon Marketing Board
Murray Valley (N.S.W.) Citrus Marketing Board
Namoi Valley Pesticides Co-ordinating Committee
National Association of Testing Authorities
National Co-ordinating Committee on Aquatic Weeds
New South Wales Stock Medicines Board
Noxious Plant Advisory Committee
N.S.W. Agricultural Equipment Advisory Committee
N.S.W. GH Maize Seed Growing Association
N.S.W. Herbage Plant Liaison Committee
N.S.W. Horticultural Export Liaison Committee
N.S.W. Horticultural Propagation Co-operative Society Ltd
N.S.W. Inter-departmental Project Team on Water Hyacinth
N.S.W. Remote Sensing Technical Working Party
Oat Industry Advisory Committee
Oats Marketing Board
Oilseeds Marketing Board
Open Cut Mining Rehabilitation Sub-committee of Technical Advisory Committee of State Pollution Control Commission

Ornamental Horticulture Advisory Committee
Pesticides Act Advisory Committee
Pesticides and Agricultural Chemicals Standing Committee
of the National Health and Medical Research Council
Port Facilitation Committee
Rice Marketing Board
Rural Youth State Council
SCA Plant Health Committee
SCA Fresh Fruit Disinfestation Committee
SCA Fruit Variety Foundation Committee
SCA Plant Production Committee
SCA Fruit and Vegetable Postharvest Research Committee
SCA Plant Introduction and Evaluation for the Semi-Arid
Woodlands Committee
Standards Association of Australia Committee CH/5 — Pesticides

Standards Association of Australia — Committee AG4 —
Agricultural Tractors and Machinery
State Wheat Advisory Committee
State Wheat Improvement Committee
Sunraysia Riverland Research Co-ordination Committee
Task Force on Use of Reclaimed Water
Technical Advisory Committee of State Pollution Control
Commission
Technical Sub-Committee of the Bush Fire Council
Tobacco Leaf Marketing Board
Wheat Standards Committee
Wheat Uniform Quality Testing Committee
Wine Grape Processing Industry (Joint) Negotiating Committee
Wine Grapes Marketing Board
Yellow Maize Marketing Board

Appendix V

REPORT OF THE PRICKLY PEAR DESTRUCTION COMMISSION FOR THE YEAR ENDED 30TH JUNE 1982

The Hon. J.R. Hallam, M.L.C.
Minister for Agriculture and Fisheries

Sir,

I submit the report of the Prickly Pear Destruction Commission
for the year ended 30th June 1982.

The Commission is responsible for the eradication and control of
prickly pear throughout New South Wales and all phases of the
Commission's activities were continued during the year.
Cooperation and good relationships were maintained with
Government departments, shire and municipal councils, Pastures
Protection Boards, trusts, private organizations and individual land
owners.

The objective of the *Prickly Pear Act*, 1924, was the eradication of
common pest pear (*Opuntia inermis*) from New South Wales. For
some time it has been obvious that this objective is not likely to be
achieved, due to the nature of the plant and the economics of such
a plan. The Commission's continuing policy has been to maintain
the highest possible degree of control.

The Commission's objective concerning other cactus pest varieties,
including tiger pear (*O. aurantiaca*), tree pear (*O. tomentosa*),
smooth tree pear (*O. monacantha*) and rope pear (*O. imbricata*) is
to achieve a control situation. This objective also applies to other
cacti that can become a problem, such as creeping pear (*O.*
compressa) and two close relatives of common pest pear, viz. *O.*
lindheimii and *O. bonaerensis*. The objective with harrisia cactus
(*Eriocereus martinii*) is to achieve total eradication in New South
Wales.

The Commission is continuing to use an integrated control
approach with emphasis on biological control of pest pear species.
A programme involving the distribution of the prickly pear insects,
cactoblastis (*Cactoblastis cactorum*) and cochineal (*Dactylopius*
austrinus and *D. ceylonicus*), the use of chemicals, cultivation and
other mechanical methods, plus a constant inspection programme,
is having reasonable results.

Common pest pear, harrisia cactus, tree pear and rope pear are
being controlled. Other minor species pose no threat. Tiger pear is
not under control. Major infestations are causing problems on the
Horton, Gwydir, Severn, Dumaresq, Namoi, Peel, Castlereagh,
Hunter, Goulburn, Turon and Macquarie Rivers and some of their
tributaries. Control of isolated infestations has been achieved but
much more work is necessary before an acceptable general
situation can be reached.

A spectacular reduction of tiger pear by cochineal insects occurred
during 1980-81. Ideal weather conditions, particularly extended
periods without rains during the winters of 1980-81, were a major
contributing factor. However, long periods of high temperatures
during the 1980-81 summer caused heavy mortality among
cochineal populations. The sudden loss of insects severely
handicapped the Commission's biological programme during the
first half of 1982.

An insect breeding programme has been developed to counteract
the unreliability of field propagation. Cochineal insects are being
bred in controlled temperature sheds at the Trangie and Tamworth
Agricultural Centres. The cooperation of the Department of
Agriculture in providing these facilities is greatly appreciated.
However, there is an urgent need to build permanent breeding
facilities at the Commission's strategically located major depots at
Dubbo, Mudgee, Scone, Tamworth and Bingara. Funds are being
sought in the 1982-83 financial year for this project. The estimated
total cost involved is \$50 000.

The entomologist employed by the Commission to investigate all
aspects of the biological control of pest pear species visited the
Republic of South Africa during March 1982. This study tour
provided valuable information which he will incorporate into his
research programme.

During 1981-82 the Commission continued to assist landholders,
Government departments, shire councils, Pastures Protection
Boards, trustees of commons, cemeteries, parks and reserves to
destroy pest pear species on lands under their control. Gangs of
men are available for hire from the Commission to carry out
eradication and control work. Much of this work is subsidized by
the Commission on a dollar for dollar basis. A prickly pear spray
is supplied at cost price and when it is purchased to eradicate tiger
pear it is supplied at half price. The cost of free eradication work
and free prickly pear spray supplied during the year to
landholders, government departments and instrumentalities
amounted to \$76 552.19.

The destruction of pest pear species on all unoccupied Crown land is the responsibility of the Commission. This work was continued throughout the year and the cost to maintain these areas was \$48 070.76.

Prickly pear eradication work costing \$128 011.96 was carried out under contract by the Commission for 204 private landholders. Some owners were assisted, by allowing them to pay by instalments over a period of years at a low interest rate.

The Commission has continued to make supplies of prickly pear insects available to land owners free of cost. The insects are liberated and spread on properties by Commission staff where warranted.

The Prickly Pear Destruction Commission currently has a staff of three administrative officers, two scientific officers engaged on research work and 45 men on field duties. They comprise 10 Public Service Board appointees and 40 employed under the *Prickly Pear Act*. The field staff operate from office and depot facilities located at Dubbo, Mudgee, Scone, Singleton, Tamworth, Bingara, Ashford, Moree and Mungindi.

Following the transfer of responsibility for administration of the Prickly Pear Destruction Commission from the Minister for Lands to the Minister for Agriculture in 1975, a limited degree of integration with the Department of Agriculture was achieved. With the transfer of the headquarters of the Prickly Pear Destruction Commission to Tamworth in October 1980, and regionalisation of all functions of the Department of Agriculture in 1981, the possibility of further integration was enhanced.

In January 1982, the Director-General of Agriculture convened a small working party to investigate and make recommendations on means of achieving further integration of the Prickly Pear Destruction Commission within the Department.

The working party inspected the facilities and operations of the Prickly Pear Destruction Commission and talked with key members of its staff at Tamworth, in the field and at its district office/depots in the New England, Hunter and Metropolitan Region and in the Orana and Far Western Region. The working party reached the following conclusions:

(a) The Prickly Pear Destruction Commission is a proven, effective way of handling serious weed pests and thus provides a model for the prosecution of a noxious weed control programme.

(b) With continuing enhanced integration, there will be opportunities for the use of further resources within the Department of Agriculture (e.g. Weeds Officers) to assist in the Prickly Pear Destruction Commission's functions.

(c) The integrated control approach with emphasis on biological control of pest pear species is endorsed.

(d) There is a need for sustained research to provide a continuous flow of new knowledge for use in advisory and educational programmes.

The working party submitted its recommendations to the Director-General of Agriculture and also reported on the numerous steps towards further integration taken during the investigations. These included the use of the resources of Region 2 to stage a successful field day demonstrating control of tiger pear in the Scone district; the registration of the Prickly Pear Destruction Commission's motor vehicle fleet in the name of the Department of Agriculture; the identification of those vehicles with the Department's series of number plates and with the Department's logo; the use of the Department's resources in preparing displays for Ag-Quip 1982 and the Mudgee Small Farm Field Days; the use of the Department's resources in designing new signs to be erected at each of the Prickly Pear Destruction Commission's depots, featuring the Department of Agriculture symbol.

Recommendations by the Working Party include:

Provision of funds to enable the construction of urgently required breeding facilities at Mudgee, Scone, Bingara, Dubbo and Tamworth; re-location of the Mudgee depot;

The inclusion of the Prickly Pear Destruction Commission staff in appropriate departmental and Public Service Board training programmes;

Staff numbers be maintained at 55, to ensure the effectiveness of the Commission's work at an adequate level throughout the State.

The total expenditure by the Commission for the year ended 30th June 1982 was \$1 290 951.72, an increase of \$31 130.52 compared to last year.

Sundry debtors increased by \$3895.06. The amount outstanding is \$10 738.84 compared to \$6843.78 last year.

There were 46 Prickly Pear leases covering an area of 22 355 hectares as at 30th June 1982, of which 39 comprising 15 949 hectares were leases in perpetuity

A statement of income and expenditure of the Prickly Pear Destruction Commission for the year ended 30th June 1982 follows.

G.E. RYAN
Commissioner

Prickly Pear Destruction Commission

Statement of Income and Expenditure as at 30th June 1981.

Balance in fund as at 30th June 1981	7.00	Salaries	198 619.12
Supplementation from Consolidated Revenue	1 027 000.00	Wages	583 165.35
Appropriation	60 000.00	Allowances	19 634.40
Miscellaneous Income	237 157.30	Workers Compensation & Payroll Tax	68 984.72
		Travelling Allowances & Expenses	59 788.86
		Maintenance of Motor Vehicles & Caravans	102 927.85
		Purchase of Motor Vehicles & Caravans	99 451.30
		Purchase of Stock, Plant & Minor Equipment	134 924.65
		Rents, Rates, Freight & Cartage	8 902.89
		Buildings, Improvements & Insurances	7 049.85
		Postal & Telephone Expenses	7 502.73
			\$1 290 951.72
		Balance Unexpended as at 30th June 1982	33 212.58
			\$1 324 164.30
	\$1 324 164.30		

Appendix VI

AGRICULTURAL COLLEGE COURSES AND
STUDENT STATISTICS

STUDENT STATISTICS

ENROLMENTS — 1982	Male	Female	Total
Colleges and courses			
C.B. Alexander Agricultural College			
Agriculture Certificate	47	21	68
Advanced Certificate	41	10	51
Dairy Apprenticeship			
1st Year	2	2	4
2nd Year	1	1	2
3rd Year	8	1	9
	99	35	134
Murrumbidgee College of Agriculture			
Certificate in Agriculture	60	8	68
Advanced Certificate —			
Agriculture	7	1	8
Advanced Certificate —			
Rangeland Management	3	1	4
Advanced Certificate — Irrigation	6	—	6
Irrigation Technology	3	—	3
	79	10	89
Correspondence Courses Production Unit			
Farm Management Course			285
Farm Office Management Course			218

CERTIFICATES GAINED — 1981			
Colleges and courses			
C.B. Alexander Agricultural College			
Total Advanced Certificate in			
Agriculture	32	20	52
Total Certificate in Agriculture	59	18	77
	91	38	129
Murrumbidgee College of			
Agriculture			
Certificate in Agriculture	51	3	54
Advanced Certificate —			
Agriculture	10	2	12
Advanced Certificate —			
Rangeland Management	—	1	1
Advanced Certificate — Irrigation	2	—	2
	63	6	69

